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INDIVIDUALIZED INSTRUCTION IN GROSS MOTOR SKILLS WITH SEVERELY MENTALLY RETARDED CHILDREN

by

© FRANCES ANN FRIESEN

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Individualized Instruction in Gross Motor Skills with Severely Mentally Retarded Children submitted by Frances Ann Friesen in partial fulfilment of the requirements for the degree of Master of Science.

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April 27, 1981
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ABSTRACT

The purpose of this study was to develop, implement and formatively evaluate task analyzed instructional sequences designed to teach young severely mentally retarded children selected gross motor skills. The initial phases of the program development process included the implementation and formative evaluation of task analyzed instructional sequences using some of the major features of the PREP Program model. Inasmuch as severely mentally retarded children have very different capabilities and needs in comparison with moderately mentally retarded children, modifications to the PREP Program materials were required.

The skills selected for development in the second pilot project were those which were: culturally normative, could be practised in outside environments and suited the needs and capabilities of severely mentally retarded children. The format of the instructional sequences involved writing explicitly, in paragraph form, the child and teacher behaviors for each task step. The results of the teacher interviews, conducted at the end of the second pilot project, indicated that the instructional sequences contained an excessive amount of specificity and were inappropriate for teacher use.

Task analyzed instructional sequences were written for the final implementation phase based on the results of the second pilot project. Task sequences were developed for seven motor skills. The instructional materials were written using key words and short phrases to describe the child and teacher behaviors. The subjects for the final implementation phase were thirteen children, five females and eight males, ranging in chronological age from three and one-half years to eight and one-half

years, who attended the Elves Memorial Child Development Center. The program was implemented three mornings per week. The results of the final implementation phase were obtained from the children's performance data as well as interviews conducted with the instructors at the end of the program implementation period. The results indicated that the program materials were successful in teaching most of the children gross motor skills. The instructors considered the program to be successful and expressed a desire to be involved in future gross motor instructional programs.

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INTRODUCTION

Child development experts generally accept that play is a critical factor in the facilitation of cognitive, motor and social development with non-retarded children (Hurlock, 1964; Piers, 1972). Children who are mentally retarded are hindered in their ability to participate in culturally normative play because they lack the motor skills that are required to function in play environments (Austin and Wall, 1975). The motor performance of severely mentally retarded children is considerably below that of their non-retarded peers. Many of these children exhibit poor locomotor skills which limit their opportunities to explore their personal environment (Eyman, Tarzin and Cassidy, 1970; Haavik and Altman, 1977). Often severely mentally retarded children do not adequately perform basic play skills such as running, jumping, climbing and sliding (Keeran, Grove and Zachofsky, 1969; Wehman, 1977). Their motor skill deficiencies result in most of their free time being used in non-purposeful play which limits their opportunities for social interaction. The need then arises for the development of instructional materials designed to teach severely mentally retarded children gross motor and play skills. Hopefully, the acquisition of these skills will allow them to participate in culturally normative play environments.

Research and program development has been largely focussed on persons who are mildly or moderately mentally retarded. Therefore, there is only a limited amount of resource materials available for the severely mentally retarded.

Recent program development research has been focussed on the use of individualized instructional materials to teach a wide variety of skills to mentally retarded children (Bender and Valletutti, 1976; Kysela, 1978; Watkinson, 1976; Wessel, 1975). The PREP Program materials

(Watkinson, 1976) were developed to teach play skills to moderately mentally retarded children. The PREP Program uses task-analyzed instructional sequences designed to facilitate the assessment, selection and teaching of culturally normative play skills. Each instructional sequence consists of a progressive set of criterion-referenced performance objectives which specify increasingly skillful behaviors in a given motor task. The PREP Program has proven to be effective with moderately mentally retarded children.

On the basis of the review of literature and observation of the children at the Elves Memorial Child Development Centre, it was recognized that individualized instruction programs in gross motor skills were needed to facilitate the motor development of these severely mentally retarded children. The importance of starting instructional programs at as young an age as possible for mentally retarded children was recognized. Therefore, it was decided to work with relatively young severely mentally retarded children. The initial phases of the program development process included the implementation and formative evaluation of task analyzed instructional sequences using some of the major features of the PREP Program model. Inasmuch as severely mentally retarded children have very different capabilities and needs even when compared with moderately mentally retarded children, modifications to existing PREP Program materials were required. Therefore, the major purpose of this study was to: develop, implement and formatively evaluate task analyzed instructional sequences designed to teach young severely mentally retarded children selected gross-motor skills.

The delimitations of this study were:

1) The children used in this study were severely mentally retarded. They were between the ages of three and eight and one-half years and were enrolled at the Elves Memorial Child Development Centre. Children with severe physical impairments were excluded from the study.
2) The teachers at the Elves Memorial Child Development Centre had different levels of education and training in special education techniques.
3) The training of the staff, probe testing and the structured interviews were all conducted by the author.

The limitations of this study were:

1) During some instructional periods children from other classrooms used the central play area which may have distracted the children receiving instruction.
2) The instructors did not always adhere to the teaching methods or recording procedures as described in the instructional materials even though they were encouraged to do so.

REVIEW OF LITERATURE

The review of literature section will briefly discuss the motor performance of the severely mentally retarded, instructional programs that have been designed to teach mentally retarded children gross-motor skills and the use of individualized instructional techniques for teaching mentally retarded children.

The Motor Performance of the Severely Mentally Retarded

Mentally retarded children are delayed in their general motor performance in comparison to their non-retarded peers (Bruininks, 1974; Malpass, 1960; Rarick and Dobbins, 1972; Sloan, 1951; Stein, 1965; Wall, 1976). As the intelligence level decreases, the motor performance of the individual decreases (Annett, 1953; Brown, 1974; Cantor and Stacey, 1951; Landere and Johnson, 1974); that is, the motor performance of severely mentally retarded children will usually be poorer than that of moderately mentally retarded children, who in turn usually perform motor skills at a lower level of proficiency than educable mentally retarded children.

Research studies using a variety of test instruments have indicated that the sensory-motor performance of the severely mentally retarded is greatly impaired (Illingsworth, 1972; Kahn, 1971). Specifically, severely mentally retarded children lack or exhibit poor performance in basic locomotor skills such as crawling, standing and walking (Tarzin and Cassidy, 1970; Haavik and Altman, 1977). This population is also deficient in basic play skills such as running, jumping, climbing and sliding (Keeran, Grove and Zachofsky, 1969; Wehman, 1977).

A number of reasons have been put forth to explain the poor motor

performance exhibited by severely mentally retarded children. These children may have sensory and/or physical impairments, ranging from mild to severe, which hinder their motor performance (Bradfield and Heifitz, 1976). Severely mentally retarded children often possess attentional deficits and are unable to attend to the relevant stimuli in the environment (Altman, Talkington and Cleland, 1972; Das, 1978). Cognitive and verbal deficiencies hinder their ability to understand and follow directions (Kazdin and Erickson, 1975; O'Connor and Hermelin, 1971). Finally, deficiencies related to memory function limit the motor performance of severely mentally retarded children (Brown, 1974; Lawson, 1978).

The above factors may contribute to the modelling deficits exhibited by severely mentally retarded children (Altman, Talkington and Cleland, 1972). That is, these children have difficulty in copying the performance of a motor skill. Play skills, therefore, are not developed. Consequently, practice of motor skills does not occur and without practice retention or further perfection of the skill or activity is impossible.

As outlined above, severely mentally retarded have specific difficulties that limit the development of adequate motor performance. A number of programs have been developed in response to these difficulties, the next section of this chapter reviews some of the major features of these gross motor instructional programs.

Physical Education Program Materials Developed for the Mentally Retarded

Development of physical education programs for mentally retarded children has taken a variety of directions. General sensory motor stimulation programs, following the guidelines outlined by Kephart (1970) have been successfully implemented with children ranging from moderately to profoundly mentally retarded (Maloney, Ball and Edgar, 1969; Morrison and Pothier, 1972; Webb, 1974). General sensory motor stimulation involves the stimulation of the tactile, kinesthetic, proprioceptive and sensory receptors of the body. Stimulation is accomplished through the use of various inputs to help the learner become more aware of his body parts and their functions, resulting in more effective sensory integration and motor performance (Webb, 1974).

A research study conducted by Newman, Roos, McCann, Menolascino and Heal (1975) utilized the Doman-Delacato method of sensory motor patterning with trainable mentally retarded children. Three groups were utilized: one group received the Doman-Delacato method of patterning and mobility exercises, one group received physical activity and personal attention and the third group was used to provide baseline measures for experimental manipulation. The results indicated that the experimental group receiving sensory-motor patterning made the greatest gains in motor development. A critical review of the study, based on the methodological procedures, was submitted by Ziegler and Seitz (1975). Further research, utilizing the Doman-Delacato method of sensory motor patterning, must be conducted before the effectiveness of this method of treatment can be fully demonstrated.

Diagnostic-Prescriptive teaching is another method used to aid mentally retarded children develop motorically as well as make gains in other developmental spheres. The diagnostic-prescriptive teaching model utilizes the processes of test, assess, prescribe and evaluate to meet the unique needs of the learners. Children are tested and assessed on a variety of activities. The assessment results guide the prescription of activities for individualized instruction. Evaluation can be both formative and summative to determine the effectiveness of program implementation.

Research has been conducted to determine the effectiveness of diagnostic-prescriptive teaching on pupil performance (Vodola, 1975). Positive pupil gains were reported in the studies. However, since none of the experimental designs provided for control groups or back to baseline measures, no definite conclusions regarding program effectiveness can be drawn.

Behavior modification training procedures have been used in overcoming motor deficits of the mentally handicapped. Task analysis, criterion-referenced assessment techniques, and systematically applied reinforcement contingencies characterize the methodology used to shape motor behavior (Wehman and Bates, 1978).

Gerard Kysela (1976) has coordinated the development of a program for moderately to severely handicapped children, birth to six years, titled the Early Education Project. The project consists of a home-based parent training program with infant teaching/learning intervention systems and also a school-based classroom project with toddler and preschool children. The Early Education Project focuses on four developmental areas:

a) language skills and concepts,

b) motor skills,

c) cognitive skills and concepts, and

d) self-help skills.

In all the above developmental areas, the project employs criterion-referenced assessment techniques to determine the children's competencies, followed by instruction based on task-analyzed instructional sequences.

The test-teach method of criterion-referenced assessment, as described in the project, involves the sequential introduction of prompts and guidance to determine the extent of intervention required to obtain a response from the child. The performance of the child is ranked on one of six levels, ranging from a high degree of physical assistance and verbal instruction to performance of the task after verbal instruction only. Instruction occurs after the assessment phase and is based on the results of the assessment. Once the child has attained a specified level of competency in a skill, that behavior is periodically reviewed in order to ensure retention of the newly acquired skill. Continuous progress records are kept for the children to determine the effectiveness of the program and to allow for the evaluation of the instructional materials.

The motor skill aspect of the program encompasses skills ranging from control of head and eye movements to sitting, crawling, walking and hopping. The motor capabilities of the children could perhaps be further developed by incorporating, within the structured program, instructional sequences for a greater range of motor skills.

The key elements of the Early Education Project are the early age of intervention and the use of individualized instructional techniques,

developmental task-analyzed curriculum materials and criterion-referenced assessment techniques.

The I CAN project, developed at Michigan State University by Knowles, Vogel and Wessel (1975) concentrates on an individualized physical education curriculum in physical education and recreation. The program materials are designed for trainable and severely mentally retarded children and youth.

The curriculum concentrates on three major areas:

1) maximizing healthy growth and development through motor activity
2) participation in culturally normative play and leisure activities; and
3) allowing for socialization with others in play and work situations.

The model employed by the I CAN project is plan, assess, prescribe, teach and evaluate. The project utilizes criterion-referenced measurement techniques, prescriptive teaching/learning activities, continuous pupil progress records and task-analyzed instructional materials.

The I CAN program has been tested and stated beneficial for trainable and severely mentally retarded children (Knowles, Vogel and Wessel, 1975).

The PREP program, a play program for moderately mentally retarded children was developed under the direction of Dr. Pat Austin at the University of Alberta (Watkinson, 1976). The program, an outgrowth of the I CAN project, provides task-analyzed gross-motor instructional materials designed to facilitate play in young moderately mentally retarded children.

Program implementation in the PREP program is based on the sequence of plan, assess, prescribe, teach and evaluate. Initially, the children

are tested on a wide variety of gross motor skills and an assessment of their skill level is obtained. Prescription of gross motor skills for instruction follows the assessment and is based on the individual needs of each child. Generally, each child is assigned two to three motor skills for instruction. Individualized instruction then commences utilizing task-analyzed instructional sequences. Criterion-referenced testing procedures are used to provide continuous learning records of the children. Depending on the results of the teaching, revisions of the program materials and instructional methods are made in order to optimize the progress of the children.

The gross motor instructional programs described provide useful materials for enhancing the development of mentally retarded children. Initial assessment of each child's skill level, utilizing criterion-referenced assessment techniques, is usually recommended to determine the skill level of the child. Information obtained from the assessments allow the instructor to determine where the child is lacking in development and therefore make more adequate prescriptions for motor learning. Prior to the initiation of instruction, the instructor usually identifies suitable reinforcers that can be used to reinforce appropriate skill performances. Continuous records of each child's progress are kept to allow for formative evaluation changes in the instructional materials.

The task analysis method of presenting instructional materials to mentally retarded children is one of the most helpful ways to overcome some of the difficulties mentally retarded children have in aquiring gross motor skills. The next section of this chapter identifies the need for individualized instruction, using task analyzed instructional

materials, for severely mentally retarded children.

Individualized Instruction in Gross Motor Skills for the Mentally Retarded

Research studies have indicated that mentally retarded children have difficulty in identifying and attending to the relevant stimuli in the environment (Brown, 1974; Ellis, 1970). An implication which arises from an understanding of the learning characteristics of the mentally retarded is the need for careful sequencing of the materials presented to the learner. The process of task analysis provides an opportunity to select the amount and type of information presented to the learner. Consistent with the motor learning characteristics of the mentally retarded, task analyzed instructional sequences can be developed that emphasize the key features in a subskill that the learner must attend to in order to perform adequately the motor skill (Wall, 1976).

Task analysis is a process in which a skill is systematically analyzed into its component parts and then arranged in a progressive sequence of behaviorally defined tasks to facilitate optimal learning. For example, in climbing a ladder, the target skill is accomplished by using the hands and feet in an appropriate sequence. The learning of this sequence is the first step toward skillful climbing, that is, getting the idea of the movement of climbing a ladder depends on learning the sequence of hand-foot, hand-foot. The task-analyzed instructional sequence may increase in movement complexity as the child progresses through each task step. At the same time, the child is practising the movement subskills of grasping the rungs of the ladder

and the sequence of placing his feet accurately on the rungs. The combination of improved accuracy of limb movement with the appropriate sequencing of movements leads to more optimal performance of the target skill.

The format of task analyzed instructional sequences may separate the child and teacher behaviors. The child behavior section defines the manner in which the child is to perform the task. The section describing the teacher behavior, outlines the behaviors that the teacher performs while the child is engaged in the task. The levels of teacher guidance may be referred to as manipulation, manipulative prompts, environmental prompts and verbal cues (Wall, Watkinson, Friesen, Shatz, Hoy, Hunt, 1978). Physical manipulation involves the teacher guiding the child's body or body part(s) to the desired location. Manipulation aids the child in "getting the idea of the movement" as the child receives appropriate proprioceptive feedback of his performance. Manipulative prompts involve contacting momentarily the child's body part(s) to give him direction in the movement or to signal what body part is to be moved. Environmental prompts, non-verbal events, serve to cue the child to what comes next in the performance. Tapping a stair may be classified as an environmental prompt as it cues the child where to place his foot. Environmental prompts are used to increase the accuracy and consistency of movement patterns. Verbal cues are single words or short phrases containing a specific action word which reflects the key component of the skill. For example, in the phrase "bend your knees", bend is the action word describing the desired movement.

As a child progresses through the task sequence the degree of child independence increases while the degree of teacher dependence decreases.

Once the child has the "idea of the movement", instruction is concerned mainly with increasing the accuracy and consistency with which the child performs the movement pattern.

In summary, severely mentally retarded children exhibit poor performance in motor skills and often possess certain difficulties which require special programming. Individualized instructional techniques, using task-analyzed instructional materials is one of the most useful models for teaching motor skills to mentally retarded children. The PREP Program materials have been successfully implemented with moderately mentally retarded children. The availability of the PREP Program materials lead to the first phase of the project which was to formatively evaluate the PREP Program materials and methods to determine their effectiveness with young severely mentally retarded children.

PROGRAM IMPLEMENTATION AND EVALUATION

PILOT PROJECT I

Introduction

Mentally retarded children are deficient in motor skill development. Information from various sources indicates that mentally retarded children are less physically active and often have restricted opportunities to engage in physical activities (Rarick and Dobbins, 1972; Widdop, 1967).

Research studies have demonstrated that structured physical activity programs increase the motor performance scores of educable mentally retarded children (Carter, 1966; Corder, 1966; Corder and Pridmore, 1966; Oliver, 1958; Ross, 1969; Stein, 1965). Few studies, measuring the effects of physical education on the development of moderately and severely mentally retarded children have been conducted.

At the time of program implementation, no structured physical activity programs were available to the children at the Elves Memorial Child Development Centre.

The purpose of the first pilot project was to measure the effectiveness of the PREP program materials and methods with the selected group of young severely mentally retarded children.

Subjects

Thirteen children, seven males and six females, were involved in the first pilot project. The children ranged in chronological age from three years to seven and one-half years. Of the thirteen children, seven resided at home, two in foster homes and four at the Rosecrest Centre. All of the children attended the Elves Memorial Child Development Centre five days per week from 9:30 am to 2:30 pm.

Methods and Procedures

The PREP program materials were implemented with these children four days each week. The instructors used the PREP instructional materials twice each week with the help of two students from the University of Alberta, Department of Physical Education, and twice each week on their own. PREP Manuals were distributed to the instructors prior to program implementation (Watkinson, 1976).

Instruction began mid-January, 1977 and continued until the end of June, 1977. Instructional techniques, as outlined in the PREP Manual, were implemented during the program phase. Recording of the children's performances occurred every instructional day on appropriate forms (Appendix 1). The instructors were also requested to comment on the children's performances and on the instructional materials and methods to aid in revisions of the task analyzed instructional sequences.

At the end of April, 1977, the teachers were interviewed in one-hour sessions in which open-ended and structured questions were asked to establish their views on the PREP Program materials and methods as well as on more general aspects of motor performance.

Results

The interview questions were divided into seven categories: time, the task sequences, the task-analysis method, recording, the PREP Manual, feedback and other comments. The teachers' responses to the interview questions are expressed as the results. The summary of the answers to the questions reflect the general consensus of the teachers on each topic; where a number of viewpoints were expressed, these are reported as well.

A. Time

Question 1. How much time should be available for gross-motor activities each day for the children in your class?

Answer The gross-motor activity period should be at least one hour long each day and be a period set aside solely for gross-motor activities. The basic structure of the sessions should be teacher instruction within a free play environment. The teachers noted that children who can use free play fairly effectively may have less need of teacher directed activity, therefore, freeing the teacher to work with those who require more teacher time. The teachers suggested that non-ambulatory children should have at least one-half hour per day on mobility activities directed by a teacher. Furthermore, they emphasized the need for low teacher-pupil ratios due to the high incidence of non-purposeful free play in their classes.

Question 2. How much time should be available for fine-motor activities each day for the children in your group?

Answer Depending on the needs of each child, fine-motor activities should range from one-half to one hour per day; however, this time may be spread out in small periods throughout the day. The teachers indicated that a period set aside solely for fine-motor activities was not as essential as one for gross-motor activities.

Question 3. What time of day would be best for the above two program periods?

Answer The best time for gross-motor activities would be 15 minutes after arrival in the morning. At that time the children have more energy, are not tired and have had few specific demands made of them so that they are ready to be active physically. Fine-motor activities, as indicated in the answer to the above question, should be spread out throughout the day within the classroom.

B. Tasks

Question 1. What task sequences are the most important for your class? Indicate the three most important ones.

Answer The teachers stressed the importance of progressions that fostered walking for the non-mobile child. The second most important task objective was running, followed by the specific equipment skill progressions on: tricycles, climbers, and the trampoline.

Question 2. What factors did you consider when answering the above question?

Answer The teachers emphasized that they considered the following factors when ranking the importance of the above tasks: the fundamental need of the children to be mobile in order to effectively explore the environment, the need for the children to acquire motor skills that would enable them to participate in culturally normative play, the need for the children to exhibit culturally normative play behavior that would enable them to develop appropriate social behaviors.

Question 3. How many task sequences should a teacher be working on with one child during any program period (two weeks)?

Answer The teachers agreed that they should be instructing and recording an average of three tasks during any given two week program period. The decision would depend on each child's specific needs. Those who were non-mobile might only have one or two task objectives centred on getting them walking; whereas mobile children might have up to four equipment specific skills that they were learning.

C. Task Analysis Method

Question 1. How valuable is the task analysis method in structuring the program skills into teaching progressions for use with your classes?
Not valuable _____ Little value _____
Some value _____ Valuable _____
Very valuable _____

Answer All four teachers ranked the task analysis method of structuring teaching progressions as very valuable.

Question 2. Does the importance of the task analysis method change with the ability level of the children in your group?

Answer The teachers agreed that the method was very valuable for all of the children in their classes; and its importance did not vary with the ability of the children.

Question 3. How valuable are the level of response categories (manipulation, manipulative prompt, verbal cue, demonstration, and initiation) in the Prep Program task analysis method?

Answer The teachers found the level of response categories to be helpful but confusing. They found the interpretation of the categories difficult when there was overlapping between two categories in a specific teaching behavior; for example, when a teacher provides manipulative prompts that are nearly manipulation, or manipulative prompting is coupled with verbal cues.

Another difficulty was the problem of separating, for recording purposes, the act of getting the child's attention from the motor response itself. One might use manipulation for attention and the child could complete the task with only a verbal cue. This problem was especially true with children with sensory deficits.

D. Recording

Question 1. How much time does the recording of the children's progress on a task sequence take?

Answer The teachers reported that the recording of the task progression required minimal amounts of time. The teachers indicated the need for a convenient looseleaf binder in which a separate section for each child's task progression (L.H.S.) and task progress record (R.H.S.) were provided. The teachers felt that this would be a valuable addition to the program. A convenient standard place within the playroom

for the record binder was another recommendation. Furthermore, the recording space for each session on the data chart should be increased in size to allow for more specific recordings to be made.

Question 2. How valuable is the recording of the progress of the children on each task sequence?

Answer The teachers agreed that recording the progress of the children was very valuable. Keeping track of progress and non-progress provided them with direction for program modification.

Question 3. What is your overall reaction to recording your work with the children?

Answer The teachers agreed that recording was important. Some of them expressed difficulty in accurately recording because of the many distractions that occurred within a class, for example, a child falling or behaving in an unacceptable manner. Other teachers expressed the need for optimal recording conditions (binder, standard place to record, encouragement from program support staff) in order to motivate them to complete this essential but sometimes tedious task.

A number of teachers suggested that the children in the class should be video-taped at the beginning, middle, and end of each term on the selected tasks on which they were being instructed in order to evaluate qualitatively their progress.

E. Prep Manual

Question 1. How valuable did you find the Prep Manual?
Not valuable _____ Little value _____
Some value _____ Valuable _____
Very valuable _____

Answer All four of the teachers found the Prep Manual to be very valuable in terms of program ideas, evaluation techniques, and recording procedures. They expressed the need for a similar manual aimed at the severely mentally handicapped level. All the teachers agreed that this would be a very valuable addition to their program materials. They stressed the need for task progressions for non-mobile children.

F. Feedback

Question 1. How often would you like feedback on the program?

Answer No consensus was found on the question of feedback. The teachers felt that the informal open approach used during the past three months was effective and should continue. Suggestions for more formal feedback session times ranged from once per month, to once each half term, to once each full term (September - December).

The teachers were unanimous in their desire to work in cooperation with the Prep Program staff and students. They expressed their willingness to work within future projects with the Prep staff.

G. Other Comments

1. One teacher expressed concern that the task progression be used at "teachable times" with the children. That is, if a child is not willing to try a specific task at a particular time convenient to the teacher, then the child should not be forced to do the task at that specific time. All teachers agreed that this was a difficult decision that varied with each child and each situation.

2. The importance of encouraging gross-motor behavior that was directed toward a specific object goal that was desirable for the child was stressed. The need for imagination in motivating practice on certain motor tasks was mentioned.

3. An important difference in the internal consistency within given task sequences was noted. Some tasks such as walking, running, jumping, etc. were ordinal in nature because they reached a terminal performance objective through the improvement of qualitative elements within the task sequence. Other tasks such as those in the trampoline sequence were non-ordinal because they were essentially discrete tasks that were not part of a qualitative progression toward a specific task goal.

4. The teachers suggested that gates be installed to control passage at both doorways to the playroom. They also suggested that the following equipment be purchased: a wooden slide, scooters, climbers, hanging bars, hula hoops, and tricycles.

Discussion

Results of the interviews, informal discussions with the teachers and university students, as well as the childrens' progress records, all resulted in the conclusion that the PREP program materials required further revision for use with severely mentally retarded children. Furthermore, the recording procedures also required alterations as an analysis of the recording sheets indicated that the teachers had used the recording techniques improperly.

On the basis of the forementioned discussion and existing literature on gross motor programming (Bender and Valletutti, 1976; Kysela, 1976; Watkinson, 1976), new task analyzed instructional sequences were developed during May and June, 1977.

PILOT PROJECT II

Introduction

New task analyzed instructional sequences were developed for the second pilot project based on the results of the first pilot project. Some of the guidelines that were followed in the development of these instructional materials may be found in Appendix 2. The format of the sequences involved writing, in paragraph form, both the child and teacher behaviors for each task step. Instructional sequences were devised for rolling over, crawling, pulling up to a supported stand, walking supported, walking unsupported, ascending and descending stairs, ascending and descending a ladder, jumping down, riding a tricycle and jumping on a trampoline. Examples of the sequences' format may be found in Appendix 3.

Subjects

Fifteen children, five females and ten males, were involved in the second pilot project. The children ranged in chronological age from three years to eight years.

Methods and Procedures

Meetings with the cooperating staff were conducted during September, 1977 to distribute the instructional materials and to explain the instructional techniques and recording procedures that were to be used. The guidelines presented to the instructors were:

1. As an instructor, you know your children, therefore you know their areas of strength and weaknesses. Prescribe skills on this basis and in consultation with me.

2. Record every time using sheets. State the number of trials, time spent in instruction and the child's performances, successful or unsuccessful.

3. Follow the instructional sequences and record accordingly. If a step in the sequence is in the wrong place, irrelevant, or missing, feel free to correct on the sheet. If the behavioral definition is unclear, please indicate and correct it if possible.

4. On the recording sheets, comment on teaching techniques or reinforcers that worked well.

Each of the fifteen children was prescribed one skill for instruction. The prescription of the skills was based on the advice of the child care workers in consultation with the program consultant. In order to test the widest range of task sequences, it was decided to assign each child in the classroom a different skill.

Program implementation began early in October and continued until mid-December, 1977. Instruction occurred three mornings each week at which time each child was allotted approximately ten to fifteen minutes of individualized instructional time.

The recording sheets were collected early in November. It was noted that the recording sheets were not providing sufficient data for evaluation purposes. Probe tests demonstrated that some instructors were teaching at a level incongruent with the child's skill level. Consequently, revisions of the recording procedures were made.

New recording instructions were provided for the teachers in which each child was to be formally tested, prior to instruction, on the task step at which they had last received instruction. The instructors were required to follow the exact instructions outlined in the task step. The three test trials were recorded as follows:

US - no successful performances out of 3 attempts
US 1 - one successful performance out of 3 attempts
US 2 - two successful performances out of 3 attempts
S - successful on 3 attempts

Any unsuccessful performances resulted in instruction remaining at the same task level for that instructional day. Three successful performances resulted in instruction occurring at the next higher task level. The length of time spent in teaching and testing each child was also to be recorded. As before, the instructors were requested to comment on the instructional materials. The guidelines that were established to help the teachers evaluate the materials for the purpose of guiding informal feedback were: 1) Do the task steps fit into a logical sequence? 2) Are the sequences clearly written so that you can readily follow the instruction? 3) How can the task sequences be improved? and 4) Do you have other teaching suggestions?

Formal interviews were conducted with the instructors at the termination of the second pilot project.

Results

The questions in the interviews dealt mainly with the format of the task sequences and the recording procedures. The following information regarding the effectiveness of the program materials was obtained.

Question 1. How many days a week would you like to work with the children on the program materials? 3 4 5
60% 40%

Answer Three of the instructors reported that they would like to work with the children three days a week. Of these instructors, one stated that she would like to take the other two days to teach the children other play skills. Another teacher reported that she would like to use her own instructional methods on the other two days. The remaining two instructors stated that they would like to teach and record five days a week utilizing the program materials.

Question 2. How do you find the amount of material in the task sequences?

Too little ___ Enough 60% Too much 40%

Answer Three instructors suggested that there was enough material in the sequences. The other instructors found that the sequences contained too much information. Generally, the degree of specificity in the sequences was non-functional and caused confusion.

Question 3. Are the child behaviors clearly defined? That is, do you know what you are looking for when testing?

Answer The instructors agreed that the child behaviors were clearly defined. In the case of two instructors, the child behaviors were too clearly defined. That is, the degree of detail lead to confusion and they had difficulty determining if the child had successfully completed the task step.

Question 4. Considering the format of the sequences, how can they be improved to make teaching and recording easier?

Answer The format of the sequences was satisfactory for three of the instructors. The other instructors suggested that: there be a shorter description for each task step (that is, the task steps should not require studying), the teacher behavior need not be as specifically defined and the sequences could be written as a few lines describing the terminal performance objective.

Question 5. Do you like the idea of testing each day prior to instruction?

Answer Testing prior to instruction was a helpful procedure for all the instructors. It provided the instructors with a starting point for each day's instruction.

Question 6. How can we help you record?

Answer The instructors agreed that the recording procedures facilitated the monitoring of the progress of the children. Only one instructor found that she did not have time to record. No suggestions for upgrading the quality of the recording procedures were provided by the teachers.

The two instructors who consistently answered more negatively (questions 2, 3 and 4) were responsible for teaching skills such as crawling and descending stairs. The other three instructors taught skills such as walking and jumping down. (See Appendix 3 for sequences).

Discussion

Generally, the task-analyzed instructional sequences contained too much information to be beneficial to the instructors. The high degree of specificity was non-functional and the instructors found that the amount of information was confusing and redundant.

The recording procedures that were established during the second half of the project phase were accepted favourably by the instructors. The modified recording procedures provided a standardized means for the evaluation of the task analyzed instructional sequences.

FINAL IMPLEMENTATION PHASE

Introduction

Further revisions of the instructional materials were made on the basis of the teacher interviews and the data collected on the children's performances.

Revision of the program materials was undertaken in January, 1978. The task sequences for six selected gross motor activities, crawling, walking unsupported, descending stairs, ascending a ladder, jumping down and riding a tricycle were revised. A new task analyzed instructional sequence was developed for running.

The selection of motor skills for instruction was based on two criteria, the skills were to be as culturally normative as possible and they should be skills that could be practised in outside environments. The selected skills were categorized into three areas: prelocomotor, locomotor and play skills (Appendix 4).

The format of the task analyzed instructional sequences for the final implementation phase involved separating the child and teacher behaviors. In order to meet the requests of the instructors, key words and short phrases were used to define the behaviors. The final section within each instructional sequence provided specific teaching suggestions for each task step. This section contained ideas which the instructors had previously found to be beneficial when teaching the skills. Space was also provided for the instructors to suggest any further teaching ideas (Appendix 5).

Subjects

The subjects for the final phase of the project were thirteen children, five females, eight males. The children ranged in chronological age from three and one-half years to eight and one-half years. Of the thirteen children, eleven resided at their homes, one in a foster home and one at the Rosecrest Centre.

The children attended the Elves Memorial Child Development Centre Monday through Friday, from 9:30 a.m. to 2:30 p.m., eleven months each year. The children were transported to and from the Centre by bus or cabs and occasionally by parents. The student/teacher ratio in the classrooms was three children for each teacher.

Methods and Procedure

The gross-motor activity program was conducted in the central play area at the Child Development Centre. The outside entrances to the play area were supplied with gates to prevent the children from leaving the area. The apparatus and equipment available in the Centre provided various activity alternatives (Appendix 6).

An organization session was conducted with the cooperating staff prior to program implementation. The revised instructional materials were distributed, explained and discussed with the instructors at that time. The children were assigned to motor skills for individualized instruction based on the needs of each child as determined by the motor skill assessment procedures. The performance level of each child was determined through testing. The instructors determined a rough performance level through observation. The child was then given three test trials at one task level below that indicated by the instructor. If

the child was successful, the child was tested at the next higher task level(s) until he was unsuccessful and instruction began at that task level.

If the child was unsuccessful on the initial test trials, testing occurred on the next lower task level(s) until the child was successful on three attempts. Instruction then began at the next higher task level.

The recording procedures were altered slightly for the final project phase. The children were formally tested, prior to instruction, as in Pilot Project II. Recording of the children's performances consisted of recording the number of successful attempts (0, 1, 2, 3) and the task level at which the child was being tested (Appendix 7). Identical procedures were followed for successful and unsuccessful attempts as described in Pilot Project II.

The program was implemented January 31 and continued until April 20, 1978. Gross-motor instruction occurred three mornings per week. Each child was allotted approximately ten to fifteen minutes of individualized instruction time.

Initially, the instructors were required to formally test and record the children's performances each instructional day. In some classes, however, the teachers had little time left for instruction after testing. Consequently, the testing days were reduced to two days each week, allowing the instructors one day solely for instruction.

Probe testing techniques were employed during the final project phase. Probe testing, the process of testing a child at a higher task level than that at which he is receiving instruction, in this case two task levels, was used to determine, to some degree, the ordinality and

the effectiveness over time of the task analyzed instructional sequence. The children were given three test trials on each probe test. Probe testing occurred twice each week and was completed by the author.

The criteria for child improvement, indicating the success of the program materials, was established at two task levels, that is, the successful completion of three test trials by the child, at two given task levels.

Results

The results of the final implementation phase will be presented in two major sections: the instructional sequences and the teacher interviews. The instructional sequence section will be presented in four sections for each instructional sequence: a brief resumé of the child's personal data, including comments made by the author through observation of the child, a graphic representation of the child's performance through the instructional sequence, a brief discussion of the child's performance and revisions to the instructional sequence based on the child's performance. Where more than one child has received instruction in the same skill, each child's data and a discussion of their performance will be presented separately. The section dealing with revision to the sequence will be based on the performances of all the children receiving instruction on that motor skill.

The graphs representing each child's performance are designed as follows. The horizontal axis represents the number of days in instruction. The vertical axis contains two types of information:

1) The task level at which the child received instruction. This is indicated by the numbers in ordinal sequence (example, 7, 8, 9, 10).

2) The numbers 0, 1 and 2 represent the number of successful test trials the child completed out of three attempts at a given task level. If a child successfully completed three test trials at a given task level, the child's performance is plotted along the line extending horizontally from that task level number.

Subject: 1 Residence: Home

Birth Date: 20/1/74 Date of Program Entry: 9/78

Tarc Assessment Score: 46/194 Uzgiris Hunt Scale: 2-8 months

Medical Diagnosis - severe developmental retardation
- hypotonia (diminished tone of the skeletal muscles)

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling		x	
Standing Unsupported			x
Locomotor Skills			
Walking Supported	x (with teacher assistance)		
Walking Unsupported			x
Running			x
Jumping			x
Ascending Stairs (unskilled)			x
Ascending Stairs (skilled)			x
Descending Stairs (unskilled)			x
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)			x
Ascending a Ladder (skilled)			x
Riding a Tricycle			x

Comments: Sitting unsupported is the most complex task that this child can perform unassisted.

The child lacks attentional skills and motivation.

For instructional purposes, the child has been removed to a quiet corner of the play room to reduce distractions and help alleviate the problem of attention.

No solution was found to motivate this child to perform motor skills. A variety of reinforcers were tried, some with brief success, but none being sufficiently powerful to result in a change in performance.

CRAWLING SUBJECT 1

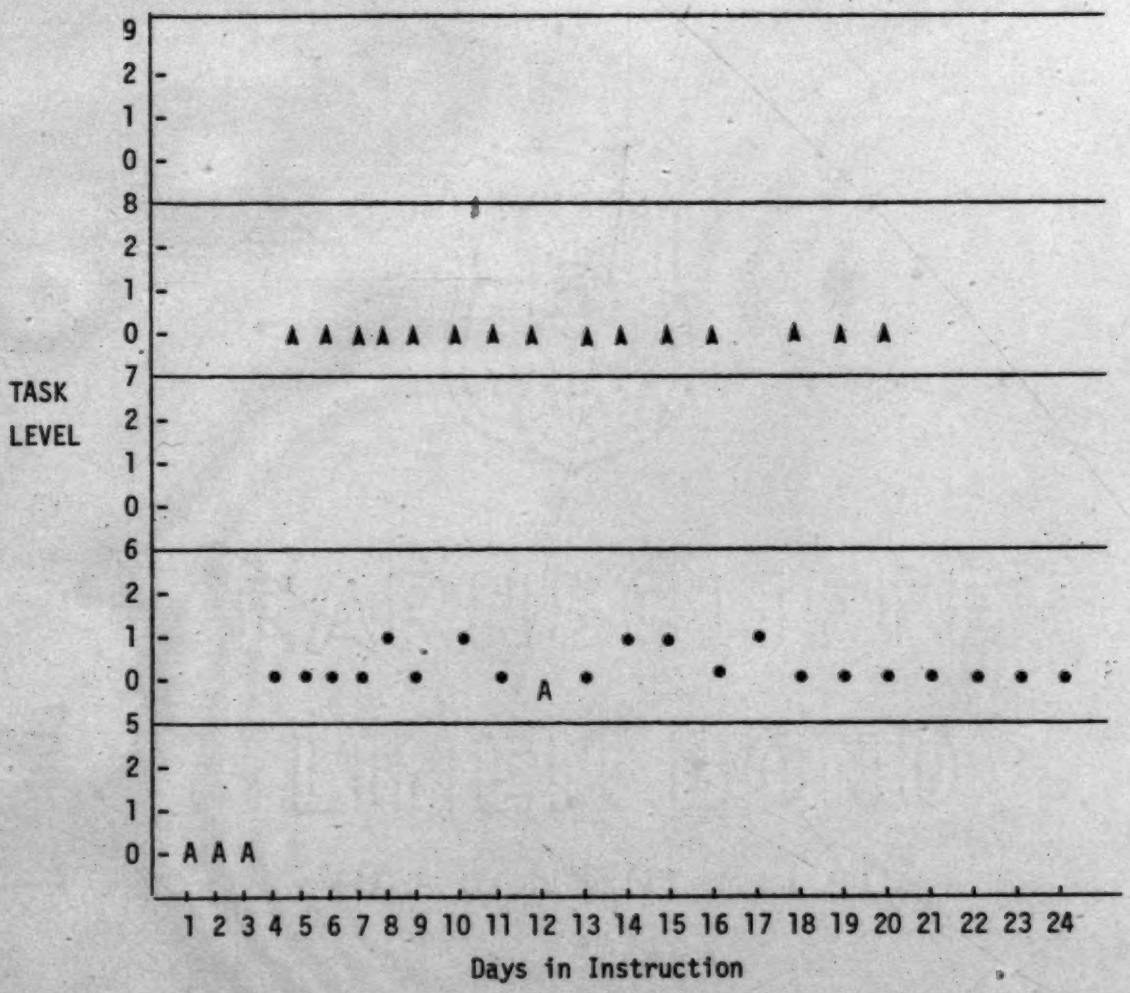


FIGURE 1

- • Child performance
- ▲ Probe test
- A Absent

Crawling

Subject 1

The child who received instruction in crawling failed to demonstrate any success in the acquisition of the skill. Motivation was the main obstacle encountered during instruction. Various reinforcement techniques were attempted, however, none proved to be successful for more than one instructional day. As only one child received instruction in crawling and this child lacked motivation, it is felt that no substantial judgments regarding the effectiveness of the sequence can be made.

Subject: 2 Residence: Home

Birth Date: 2/8/74 Date of Program Entry: 18/10/77

Tarc Assessment Score - Not Available Uzgiris Hunt Scale: 2-12 months

Medical Diagnosis - severe mental retardation (etiology unknown)

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported		x	
Running			x
Jumping			x
Ascending Stairs (Unskilled)			x
Ascending Stairs (Skilled)			x
Descending Stairs (Unskilled)			x
Descending Stairs (Skilled)			x
Specific Equipment Skills			
Ascending a Ladder (Unskilled)			x
Ascending a Ladder (Skilled)			x
Riding a Tricycle			x

Comments: Initially, this child cried for the entire instructional period except when she was allowed rest. (Sept.-Dec.)

The instructors were changed and the child did not cry during instruction, but seemed rather to enjoy walking.

The child appears to be balanced when walking, however she refuses to walk unless she is given a cloth to hold and someone holding the other end.

Not an enthusiastic child, appears just as happy to sit and watch all around her.

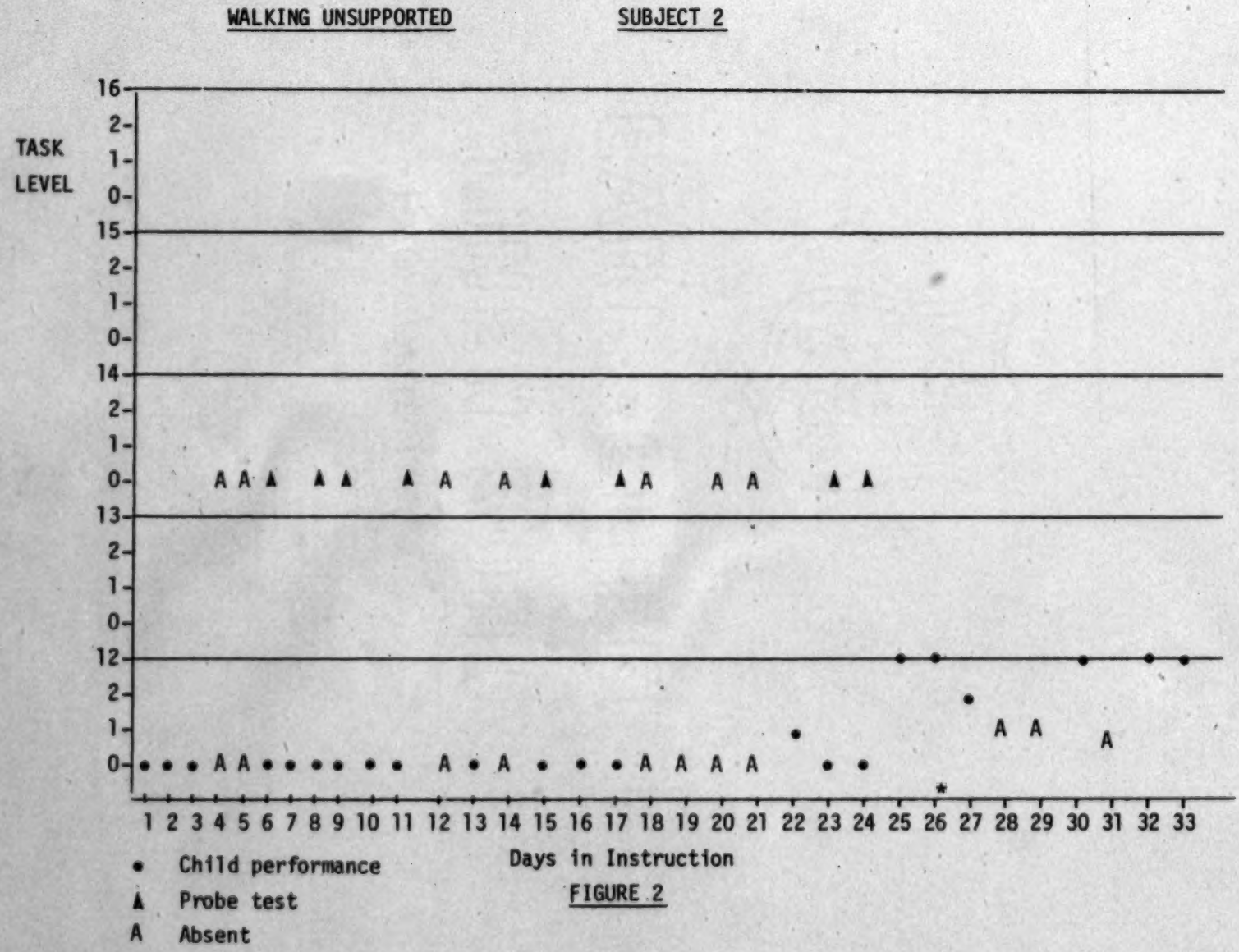

WALKING UNSUPPORTED
SUBJECT 2
TASK LEVEL
16
2-
1-
0-
15
2-
1-
0-
14
2-
1-
0-
13
2-
1-
0-
12
2-
1-
0-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Days in Instruction
• Child performance
▲ Probe test
A Absent

FIGURE 2

Walking Unsupported

Subject 2

Initial assessment of this child's skill level showed that the child was able to walk ten to fifteen feet with the support of a piece of cloth fourteen inches from the child's hand (task step 11).

Graphic representation of this child's performance (figure 2) indicates that the child had difficulty in progressing from walking with the support of a piece of cloth (task step 11) to walking unsupported (task step 12). During instruction, the child would walk any distance provided the instructor held the piece of cloth. Without some form of support, the child refused to walk. The instructor attempted to release the piece of cloth once the child was walking. These attempts failed, as the moment the instructor released the cloth, the child stopped walking and stood unsupported until the instructor again grasped the cloth.

Instructional techniques were varied and the child eventually began walking a few steps unsupported. The instructor, sitting on a scooter board and facing the child, allowed the child to place one hand on her shoulder. The instructor moved backwards on the scooter board and the child walked forward while maintaining contact with the instructor's shoulder. Once the child was in motion, the instructor moved backwards quickly requiring the child to walk two to three steps before regaining contact with the instructor's shoulder. This technique proved to be successful for the child (figure 2,*).

Subject: 3 Residence: Home

Birth Date: 6/4/73 Date of Program Entry: 9/76

Tarc Assessment Score: 78/194 Uzgiris Hunt Scale: 12-18 months

Medical Diagnosis - psychomotor retardation with multiple congenital anomalies

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported		x	
Running			x
Jumping			x
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)			x
Descending Stairs (unskilled)			x
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)			x
Ascending a Ladder (skilled)			x
Riding a Tricycle			x

Comments: This child requires assistance for most skills she performs.

Initially, instruction could not occur due to temper tantrums. Since March, she has settled down and worthwhile instruction has occurred. She requires much positive reinforcement after performing the task.

It is not possible to force this child into performing activities she does not want to perform; it causes her to rebel in tantrum form.

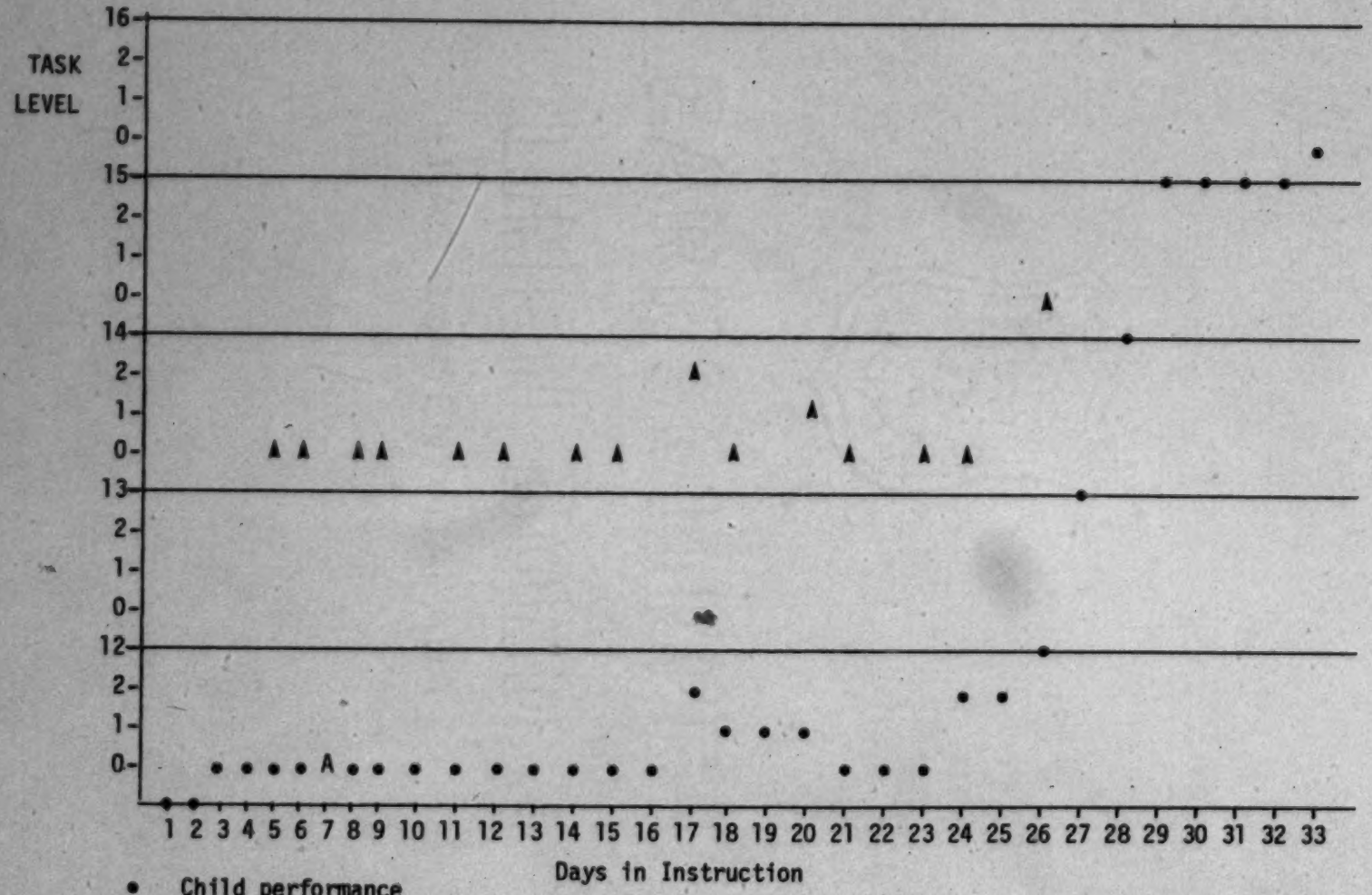

WALKING UNSUPPORTED
SUBJECT 3
TASK LEVEL
16
2
1
0
15
2
1
0
14
2
1
0
13
2
1
0
12
2
1
0
A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Days in Instruction
• Child performance
▲ Probe test
A Absent

FIGURE 3

Subject 3

An analysis of this child's progress sheet (figure 3), indicates that progressing from walking with minimal support (task step 11) to walking unsupported (task step 12) was also a difficult transition for this child. Tantrum behaviors were frequently emitted and they had a definite effect on the quality of instruction as well as the child's performance.

During the early stages of program implementation, it was noted that standing unsupported was not part of the child's motor skill repertoire. Consequently, the instructor concentrated her efforts on helping the child learn to stand unsupported. Once the child became more competent in standing unsupported, instruction was focused on teaching the child to walk unsupported. The child immediately began taking a few unsupported steps and progressed rapidly in increasing the distance walked. Experimentation with this child demonstrated the need for the acquisition of an unsupported stand before worthwhile instruction in walking could occur.

Subject: 4 Residence: Home

Birth Date: 3/7/73 Date of Program Entry: 26/9/77

Tarc Assessment Score: 69/194 Uzgiris Hunt Scale: 4-8 months

Medical Diagnosis - mental retardation
- spastic dyspeligia due to hypotonia at birth

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	(x)	x	
Running			x
Jumping			x
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)			x
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)			x
Ascending a Ladder (skilled)			x
Riding a Tricycle			x

Comments: No major behavior problems were evident to interfere with instruction.

This child appears to get the idea of movement skills fairly rapidly and seems to comprehend instruction.

This child requires continual verbal prompts to keep him walking, or he sits down. He also requires verbal prompts to keep him performing other skills.

WALKING UNSUPPORTED

SUBJECT 4

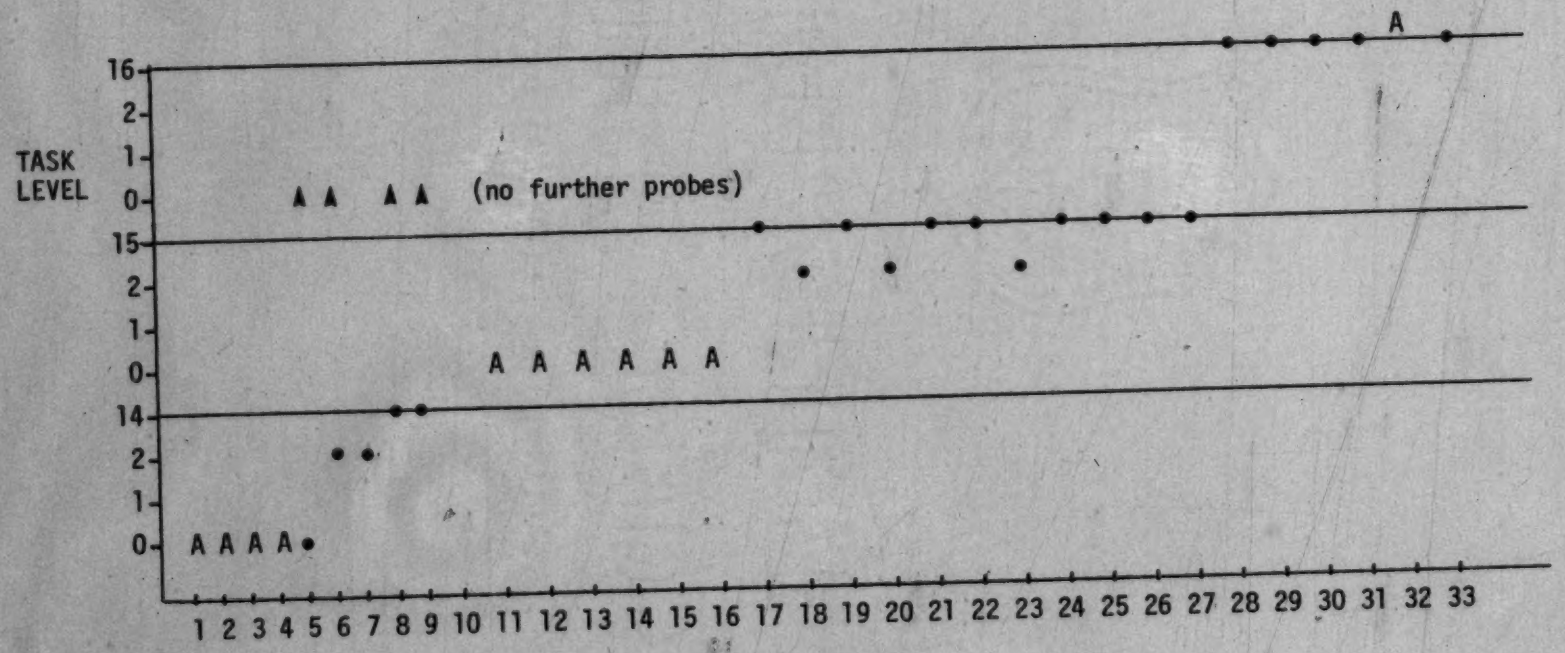


FIGURE 4

Initial performance assessment showed that this child was able to walk four to six unsupported steps from a balanced position (task step 13). Therefore instruction began at task step 14 which required the child to walk unsupported six feet from a balanced position.

Observation of this child's performance record (figure 4) demonstrates that the child progressed through to the completion of the task analyzed instructional sequence (task step 16). Progress, however, was not consistent. The child required continual prompting (verbal prompts, taps on body parts, etc.) while performing the skill. Consequently, instruction was maintained at each task level for an extended length of time to ensure independent acquisition of the skill.

Revisions to the Instructional Sequence

The performance demand in the transition from walking with minimal support (task step 11) to walking a few steps unsupported (task step 12) appears to be too great to allow for smooth progression through the task sequence. Task steps one through eleven require that a flexible object be used for support. It is the psychological support, not the physical support, provided by the flexible object that appears to hinder the children's progress. An intermediary step that could be included would be for the instructor to hold the flexible object thirteen to fourteen inches away from the child's hand, as in task step eleven, and once the child has walked three to four steps, the instructor releases the flexible object and simultaneously encourages the child to walk unsupported the "few step" gap between himself and the instructor.

Another suggestion would be identical to the above except that the instructor maintains hold of the flexible object while the child walks the gap between himself and the instructor. Both the suggested intermediary task steps require that the child walk unsupported, but allow the child to maintain hold of a flexible object.

Instruction of the skill, standing unsupported, may be interjected between walking with minimal support (task step 11) and walking unsupported (task step 12) if the situation warrants such instruction. In the case of subject three, the child had difficulties in learning to take a few unsupported steps. Instruction in teaching the child to stand unsupported appeared to remedy this situation. With subject four, however, the child was unable to stand unsupported prior to learning to walk unsupported. It was through practising walking that the child developed and practised the skill of standing unsupported. Therefore, no instructional time was lost in teaching a skill (standing unsupported) which the child developed through practise of a related skill (walking unsupported). Based on these latter observations, it is felt that instruction should initially be focused on teaching the child to walk unsupported, and only if lack of progress is evident, should instruction of an unsupported stand occur.

Subject: 5 Residence: Home

Birth Date: 26/5/72 Date of Program Entry: 14/7/75

Tarc Assessment Score: 83/194 Uzgiris Hunt Scale: 12-24 months

Medical Diagnosis - psychomotor retardation second to multiple abnormalities
- small for gestational age
- abnormal skull
- convulsions

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running		x	
Jumping			x
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)			x
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)			x
Riding a Tricycle	x		

Comments: This child demonstrated fear towards unknown activities and/or objects. It has been found difficult to introduce her to new activities because of this fear.

This child appears to have a balance deficit. On a number of occasions, she has fallen where it appears as though regaining her balance would not have been difficult.

The child is very submissive and lacks initiative.

Rarely is she found engaging in purposeful activities during free play periods.

RUNNING SUBJECT 5

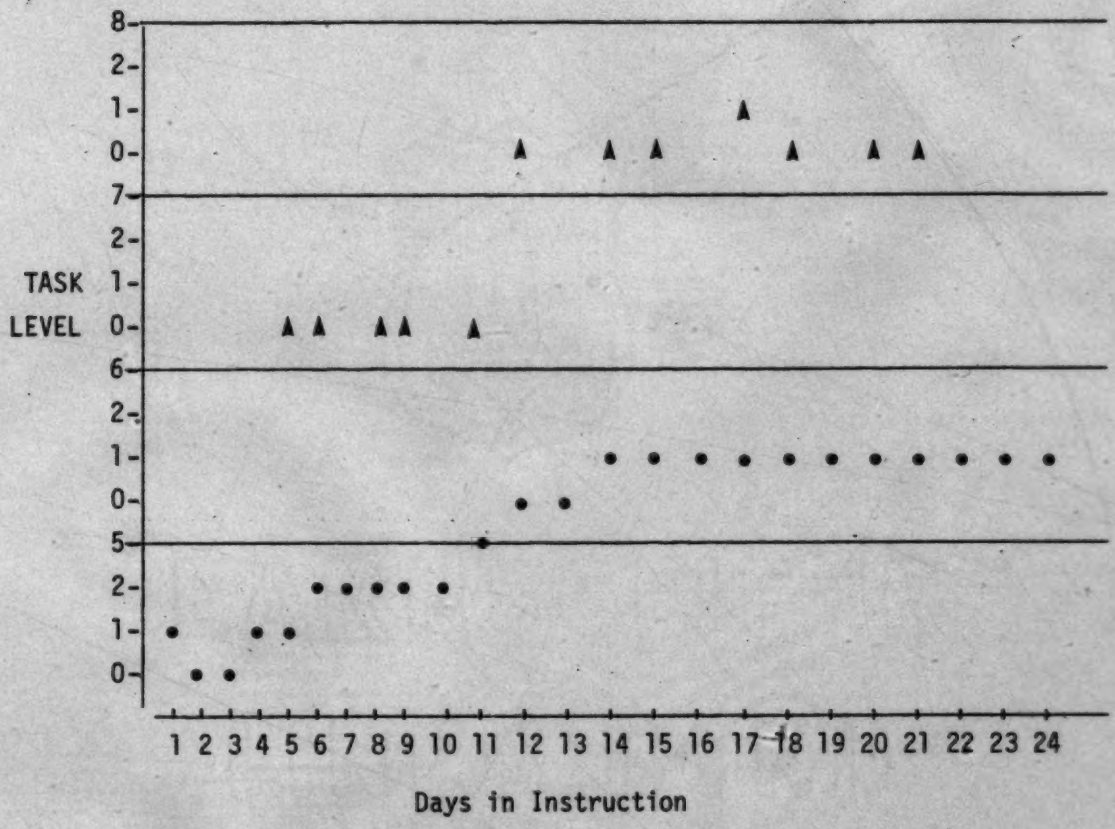


FIGURE 5

• Child performance

▲ Probe test

Running

Subject 5

At the outset of the program, this child was able to perform a fast walk unassisted (task step 4) and often displayed this skill during free play periods. Instruction began at the subsequent task step which required the child to perform a fast walk down an inclined surface with teacher manipulation (task step 5). Observation of this child's progress sheet (figure 5), shows that an extended length of time was spent at this task step. Because this task step involved complete physical manipulation, three instructional days should have been sufficient for the child to demonstrate successful completion of the task step. This child demonstrated a tremendous amount of fear towards unknown activities and also appeared to have a balance problem. These two limitations may have been partially responsible for lack of progress.

The following step in the task-analyzed instructional sequence required the child to perform a fast walk down the incline with manipulative prompting (task step 6). Minimal progress was demonstrated at this task level (figure 5). However, it should be noted that the child consistently completed one of the three test trials. No substantial explanation is available for this inconsistency of performance.

Subject: 6 Residence: Home

Birth Date: 10/8/69 Date of Program Entry: 9/76

Tarc Assessment Score 56/194 Uzgiris Hunt Scale: 4-8 months

Medical Diagnosis - severe mental retardation

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running		x	
Jumping			x
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)			x
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)			x
Ascending a Ladder (skilled)			x
Riding a Tricycle			x

Comments: This child is overweight and has a large body frame. This structure hinders her performance of motor skills.

During instruction, it is obvious that she does not comprehend what is expected of her. She does not appear to understand verbal directions or demonstrations. Consequently, the majority of instruction time is spent manipulating the child through movement skills.

RUNNING

SUBJECT 6

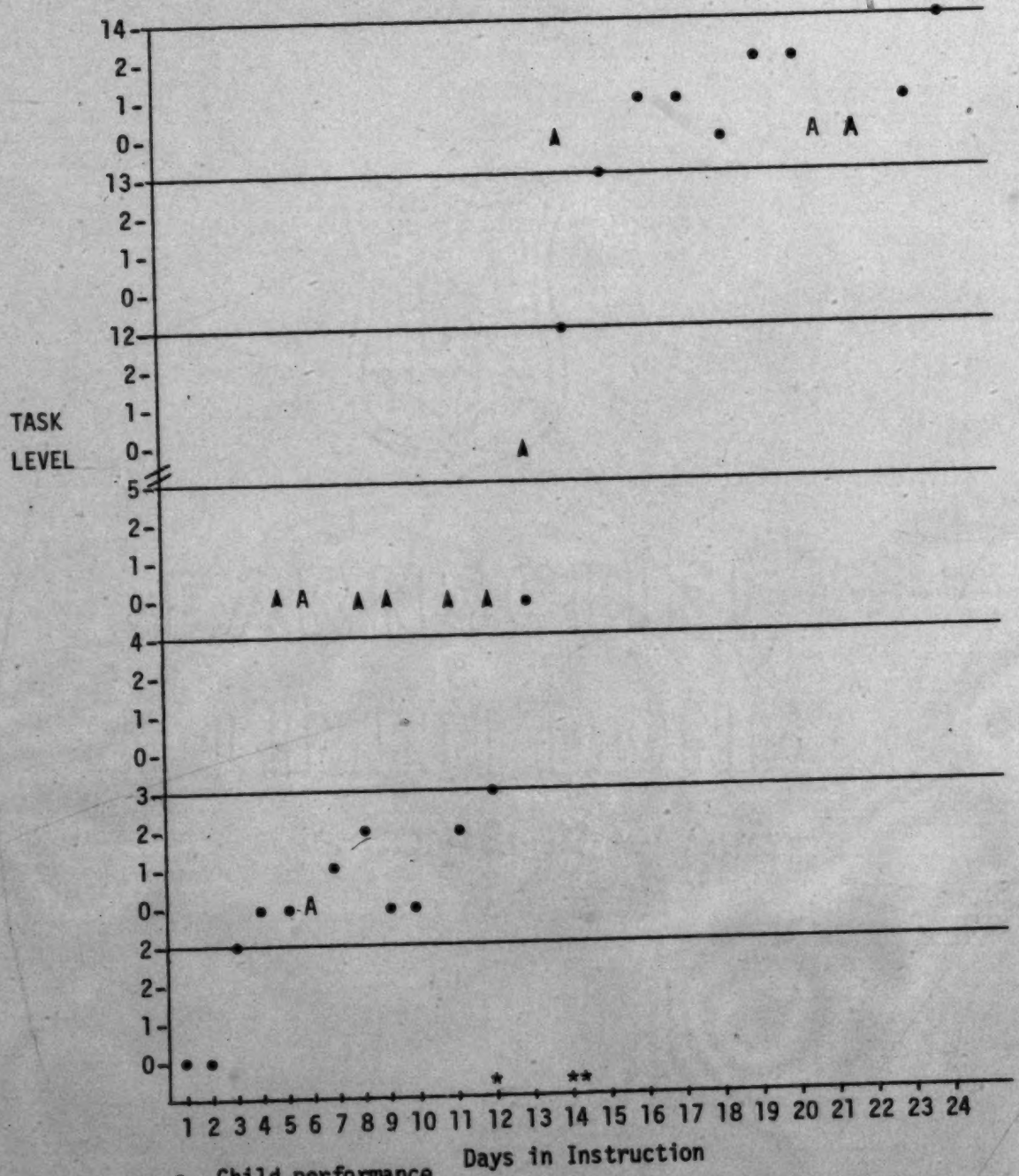

TASK LEVEL
14 2 1 0
13 2 1 0
12 2 1 0
5 2 1 0
4 2 1 0
3 2 1 0
2 2 1 0
0
A A A A A A A A A A A A A A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Days in Instruction
• Child performance
▲ Probe test
A Absent

FIGURE 6

Subject 6

Prior to the implementation of the program, this child would only saunter around the playroom. Characteristically, the child lacked motivation and seldom participated in any physical or play activities.

Initially, instruction was concerned with getting the child to perform a fast walk, on a level surface using manipulative prompts and verbal cues (task steps 2 and 3). Performance of a fast walk at both these instructional levels was soon accomplished (figure 6). Performance of a fast walk, on a level surface, unassisted, (task step 4), was eliminated from the sequence (figure 6*). It was decided by the child's teacher and the author that much instructional time could have been lost awaiting the child's performance of a fast walk unassisted.

Attempted performances of a fast walk down an inclined surface with teacher assistance failed to prove successful. The child tended to stop any forward momentum provided by the inclined surface. Consequently, all task steps involving activity on the inclined surface (task steps 5 through 11) were omitted from the task sequence (figure 6**).

Reintroduction of activity on a level surface showed the child acquire, fairly rapidly, the skill of running (figure 6). At the termination of the program, the child was able to run after receiving a verbal cue. The child, however, failed to initiate a run during free play periods.

Revisions to the Instructional Sequence

One revision to the sequence would involve the elimination of all task steps requiring activity on the inclined surface (task steps 5 through 11). The inclined surface was introduced into the sequence because of the forward momentum it provided the performer. However, because the two children in this program tended to counteract this force, the value of the inclined surface was eliminated.

Performance of a fast walk unassisted (task step 4) could also be omitted from the instructional sequence if the individual characteristics of the child warrant such an omission. That is, instructional time should not be wasted awaiting the child's performance of the skill, when instruction in running could be occurring.

Subject: 7 Residence: Rosecrest

Birth Date: 13/9/73 Date of Program Entry: 9/76

Tarc Assessment Score: 131/194 Uzgiris Hunt Scale: 18-24 months

Medical Diagnosis - cleft palate
- ectodermal dysplasia

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running	x		
Jumping		x	
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)	x		
Descending Stairs (unskilled	x		
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)			x
Riding a Tricycle	x		

Comments: This child possesses a high level of receptive language skills. Instruction, therefore, relied heavily upon verbal instructions.

This child has a petite body structure. It was discovered that some of the equipment was too large for her to successfully perform skilled activities.

She often did not "want" to partake in physical activities. On these occasions, many difficulties had to be overcome before instruction could occur.

She demanded much teacher attention and if she did not receive it, she would often sit and be an onlooker to the activities happening in the central play area.

This child was the only student in the class who could communicate with the instructors and vice versa. This may be a reason for some of her stubborn tendencies.

JUMPING

SUBJECT 7

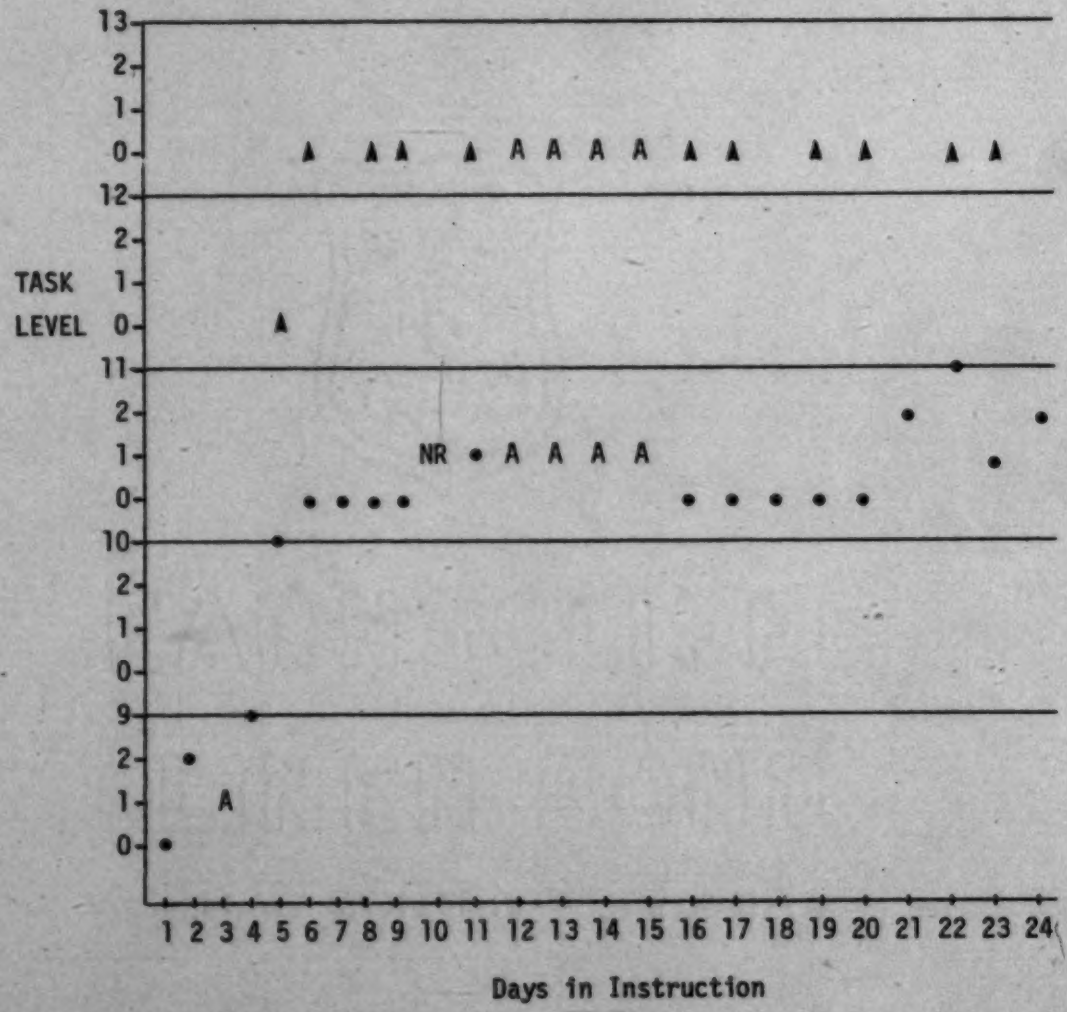


FIGURE 7

- • Child performance
- A Probe test
- A Absent
- NR No response

Jumping Down

Subject 7

Formal instruction began with teaching this child a two foot take-off, two foot landing jump. Observation of the child's progress sheet (figure 7) indicates that difficulty was first encountered when the child was required to initiate the jump and only receive physical support upon landing (task step 11). Instruction of the previous two task steps (task steps 9 and 10), had provided the child with physical support upon initiation of the jump as well as upon the landing.

This child often demonstrated uncooperative behaviors where she would only perform skills when and how she wanted to perform them. The lack of progression displayed by this child may have been due to this behavior. Because support had been provided on the take-off phase of the previous task steps, the child perhaps demanded that support prior to her jumping. The increase in performance demand between the two task steps (task steps 10 and 11) may have posed a barrier to the child. However, the increase in the degree of difficulty between these task levels does not appear unrealistic. Data to support this supposition is unavailable. A change in instructional sequence could have been made where there was a reduction of support given by the instructor to the child upon landing. However, progress was eventually established and the child performed the skill as described in the instructional sequence.

Subject: 8 Residence: Foster Home

Birth Date: 27/10/73 Date of Program Entry: 9/76

Tarc Assessment Score: 103/194 Uzgiris Hunt Scale: 12-24 months

Medical Diagnosis - mental retardation

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running	x		
Jumping		x	
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)	x		
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)			x
Riding a Tricycle			x

Comments: This child is very physically active and is rarely found sitting dormant in the play room.

He possessed a behavior problem which greatly interfered with instruction. He would rarely attend to the instructions given by the teacher and usually rebelled physically against anyone who attempted to teach him a motor skill.

Only if he desired to engage in an activity would he put forth a worthwhile effort.

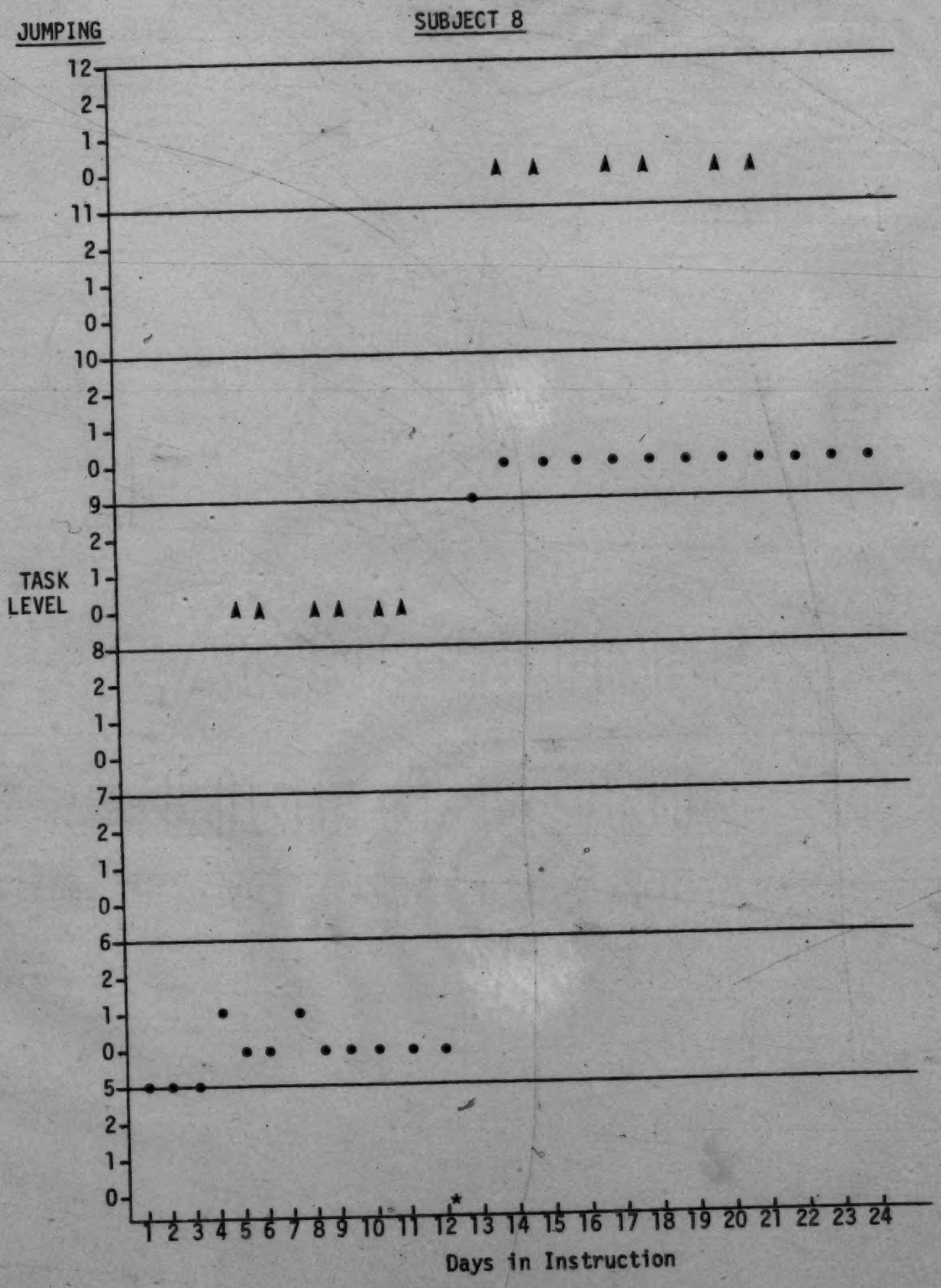


FIGURE 8

• Child performance

▲ Probe test

Subject 8

Instruction was initially devoted to teaching the child a one foot take-off, two foot landing jump. Instruction continued for four weeks prior to elimination of that jumping sequence (task step 6 through 8) from the total instructional sequence (figure 8*). The jumping style, as described above, appeared awkward, suggesting that it perhaps was not a prerequisite skill for learning a skilled jumping pattern (two foot take-off, two foot landing). Omission of these task steps resulted in the child receiving instruction on a two foot take-off, two foot landing jump. Observation of the child's performance sheet (figure 8), indicates no progress was made by the child in performing a skilled jump. The child failed to jump off the bench with two feet if his hands were released prior to take-off (task step 10).

The child seemed to have attentional difficulties which interfered with instruction. The teacher would get the child's attention and immediately give instructions to the child. However, the child was more quickly distracted and consequently rarely performed the skill as instructed. The child also possessed a behavior problem which as well interfered with instruction. These two factors had a definite effect on the child's performance. However, it is not possible to determine if the child's failure to acquire the skill was the result of his behavior alone or a combination of his behavior and the quality of the instructional sequence.

Revisions to the Instructional Sequence

No changes have been suggested for the last four steps (task steps 9 through 12) in the instructional sequence. Behavior difficulties were encountered with both these children and it is not possible to determine whether the children's behavior, the instructional sequence or a combination of both was responsible for the lack of progress exhibited by these children. However, since subject 7 began to demonstrate some progress through the sequence, these task steps should remain as is, allowing further research to dictate where revisions should occur.

The task steps referring to a one foot take-off, two foot landing jump (task steps 5 through 8) should be omitted from the instructional sequence as they do not appear to aid in the acquisition of skilled jumping.

The task steps involved in the stepping down movement, one foot take-off, one foot landing, should remain as an integral part of the sequence or be a pre-requisite skill for jumping (task steps 1 through 4). These movements allow the learner to get the feeling of transferring his body weight from a higher position to a lower position.

Subject: 9

Residence: Home

Birth Date: 20/11/73

Date of Program Entry: 12/9/77

Tarc Assessment Score: 85/194

Uzgiris Hunt Scale: 4-12 months
Spatial Relations - 24 months

Medical Diagnosis - congenital psychomotor delay (etoilogy not yet determined)

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running	x		
Jumping	x		
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)	x		
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)		x	
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)		x	
Riding a Tricycle			x

Comments: Attention was a major problem during instruction. This child would attend to anything except the instructor. The instructor introduced primary food reinforcers with him to help gain his attention and provide motivation. Introduction of the food reinforcement saw an immediate increase in his performance level.

DESCENDING STAIRS SUBJECT 9

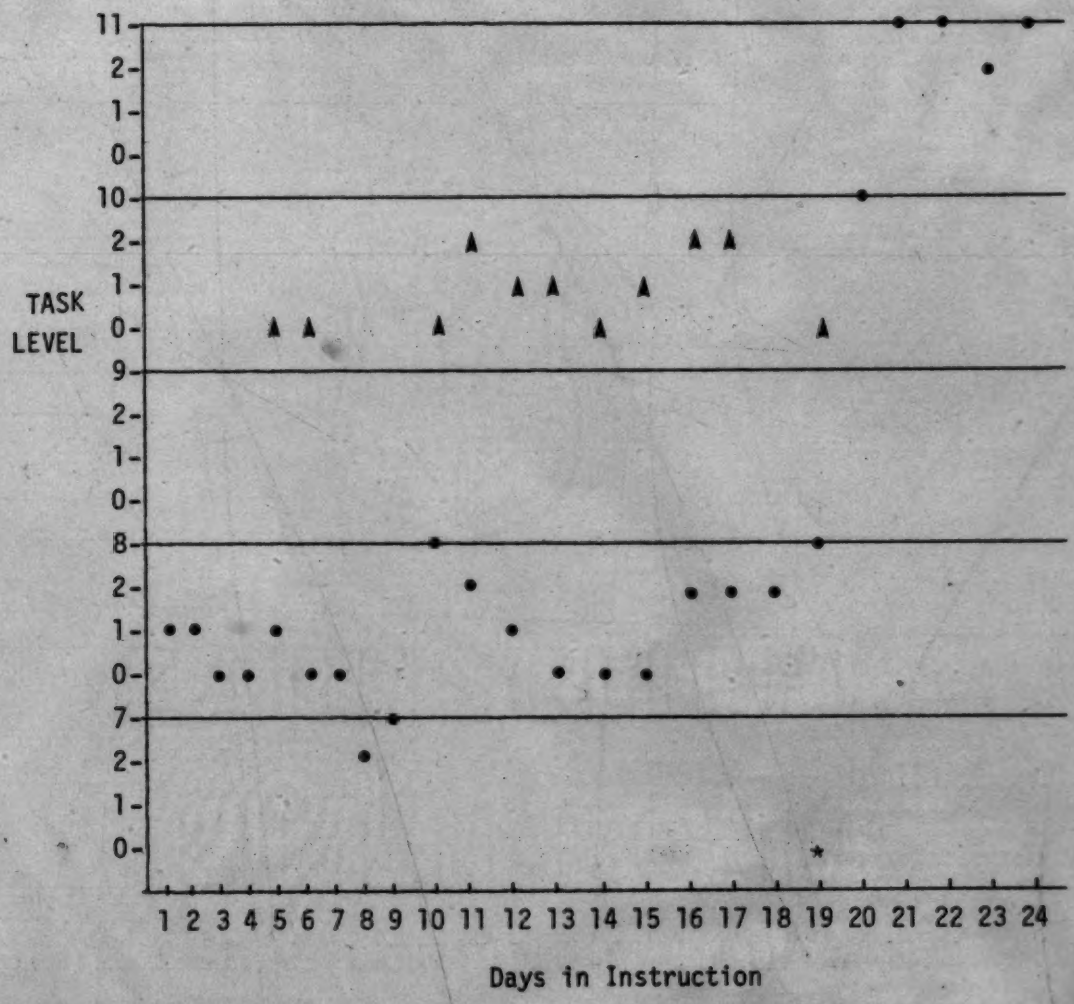


FIGURE 9

• Child performance

▲ Probe test

Descending Stairs

Subject 9

Initial assessment of this child's skill level indicated that the child was able to descend stairs, using alternating feet with teacher assistance (task step 7). Instruction, therefore began at task step eight were the child was required to descend the stairs, using alternating feet, with environmental prompts for foot placement. As indicated in the child's progress sheet (figure 9), substantial progress was not made at this task step. Consequently, instruction was initiated at the next lower task step. At this task level, manipulative prompts were used to aid in foot placement, which allowed the child to get the feel of the correct movement sequence. After two days of instruction at this task level, the child progressed to task step eight. The child demonstrated success on his first attempt at this task level. The instructor, however, considered this performance not to be a true reflection of the child's ability and therefore continued instruction at this level. The child's performance level declined with the subsequent days of instruction, possibly due to a lack of motivation. Food reinforcers, such as juice, cheezies, and smarties, were introduced and the child's performances increased dramatically as indicated in the progress sheet (figure 9*).

During the time period the child's performance on task step eight was decreasing, probe test results indicated that the child could successfully complete some of the test trials in task step ten. This finding indicates that these task steps (task steps 8 and 10) were not sequenced in an hierarchical arrangement at least for this child.

Subject: 10 Residence: Home

Birth Date: 7/3/74 Date of Program Entry: 6/9/77

Tarc Assessment Score: 39/194 Uzgiris Hunt Scale: 2-12 months

Medical Diagnosis - multiple congenital anomalies
- hearing loss
- behavior problem

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running	x		
Jumping			x
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)			x
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)		x	
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)		x	
Riding a Tricycle			x

Comments: This child was required to wear a hearing aid, however, he rejected it and it was rarely in place. Instruction, therefore, relied heavily upon demonstration and physical prompts.

This child loved to play with blocks and puzzle, eventually they were used as a reinforcer to motivate him to perform.

This child rarely engaged in purposeful play activities during free play periods.

DESCENDING STAIRS SUBJECT 10

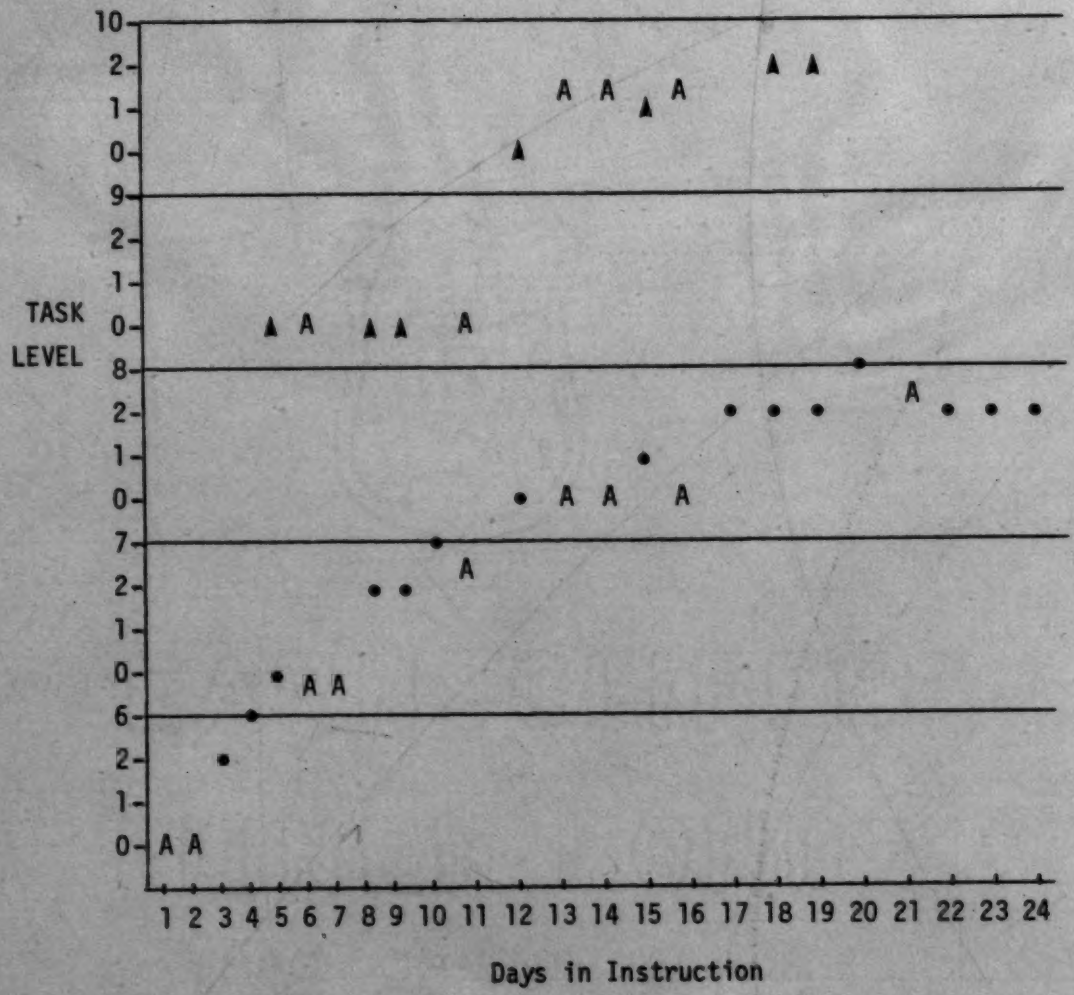


FIGURE 10

- • Child performance
- ▲ Probe test
- A Absent

Subject 10

Initial assessment revealed that this child could descend stairs marking time, unassisted. Instruction therefore began with helping the child learn to descend stairs, using alternating feet, with teacher assistance on foot placement (task step 6). As indicated in the child's progress sheet (figure 10), the child progressed through task steps six and seven without difficulty, but encountered difficulty on task step eight. A number of absences may have accounted partially for the lack of skill acquisition. However, probe test results indicated that the child could successfully complete some test trials at task step ten. These results, consistent with those found with subject nine, suggest that task step eight requires a greater performance demand than task step ten.

Revisions to the Instructional Sequence

Both the children who received instruction in descending stairs demonstrated similar performance patterns. Probe test results on task step ten indicated that task steps eight and ten were not in hierarchical sequence. Probe test results are unavailable for task step eleven. However, similar results to those found on task step ten would probably have been obtained. In both these task steps (task steps 10 and 11), the child holds the instructor's hand. The physical assistance of the instructor provides guidance to the child so the child places his foot on the appropriate step. Initially, these two task steps were included to help the child learn to descend stairs without support of the hand-

rails. However, the performance results obtained suggest that these two task steps be included in the instructional sequence prior to task step eight. Task step seven provides manipulative prompting for foot placement. For this reason, task steps ten and eleven should be inserted between task steps seven and eight.

For the child to descend the stairs without support of the handrails would require the inclusion of two additional task steps. The first of these would be for the child to hold an object in one hand and the handrail with the other while descending the stairs. Holding an object in each hand while descending the stairs would constitute the final step in the instructional sequence.

Another revision to the instructional sequence could be to further break down the criterion requirements for task steps eight through eleven. Instead of the criteria for each task step being correct execution of the skill for all the steps, the criteria could be modified to require correct execution on one step, then on two steps, on three steps, etc. This change in criterion requirements would allow for more fluent progression throughout the task sequence, as well as providing the learner with a greater number of successful performances.

Subject: 11 Residence: Home

Birth Date: 25/11/74 Date of Program Entry: 11/76

Tarc Assessment Score: 77/194 Uzgiris Hunt Scale: 2-8 months

Medical Diagnosis - mental retardation
- small stature
- retinal dysplasia with amblyopia
- possible cardiac abnormalities

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running			x
Jumping			x
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)			x
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)		x	
Riding a Tricycle			x

Comments: This child seldom initiated play activities and spent the majority of his time in complete idleness. During instruction it is essential to keep prompting this child to continue performing the task.

During instruction, the child demonstrated lack of attention, motivation and comprehension of instructions. No reinforcer was found that would prompt him to perform the skill.

As stated previously, the child possesses a vision deficit. The effect of this deficit on his motor performance is unknown.

ASCENDING A LADDER SUBJECT 11

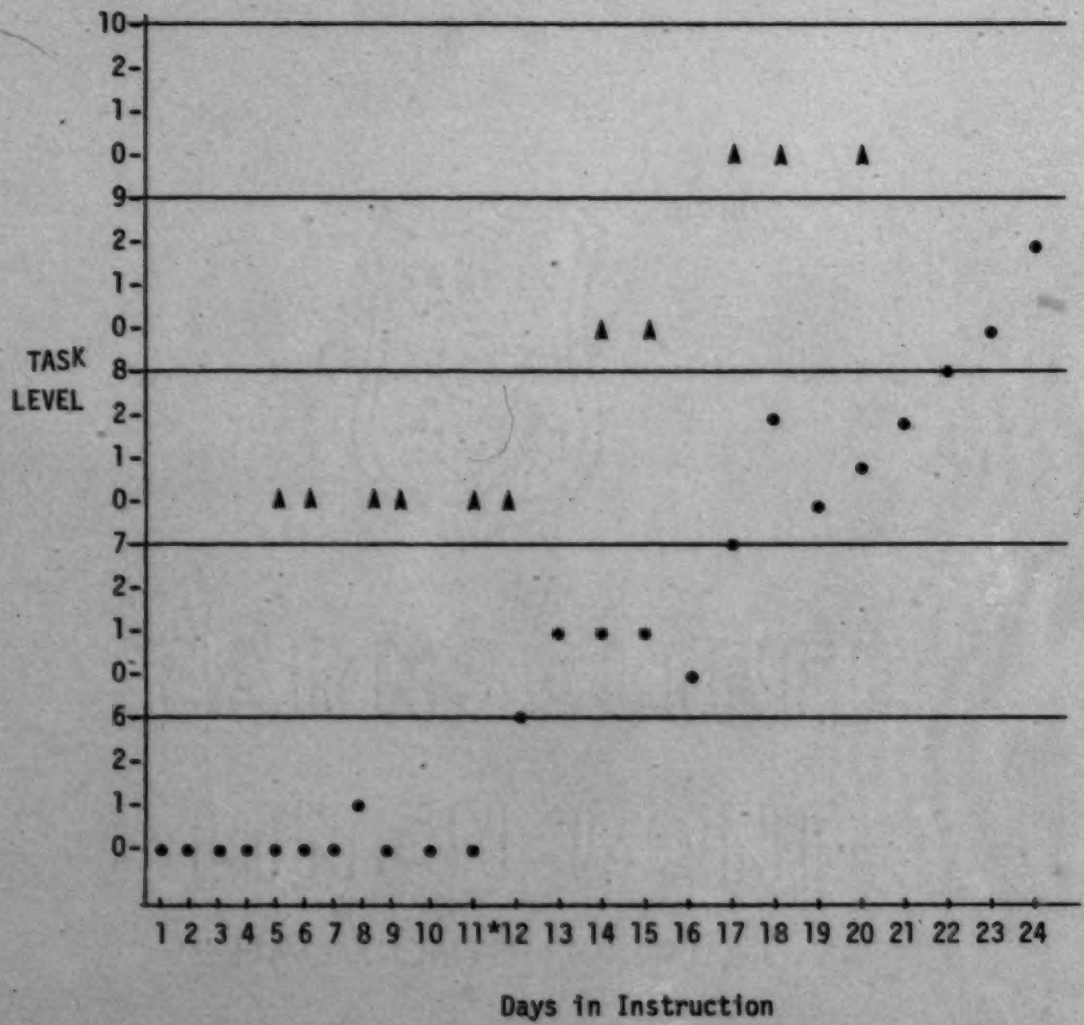


FIGURE 11

• Child performance

▲ Probe test

Ascending a Ladder

Subject 11

Initial assessment of this child's skill level revealed that the child could successfully ascend a ladder, marking time, using a hand-hand, foot-foot style (task step 5). Instruction, therefore, began with teaching the child to ascend the ladder placing each foot on an alternate rung (task step 6). As indicated by the child's progress sheet (figure 11), no progress was demonstrated in the acquisition of this skill. The performance criterion established for task step six was perhaps too great considering the increased performance demand in the transition from task step five to task step six. The criteria for successful completion of task step six required the child to ascend the entire ladder placing each foot on an alternate rung. Revisions to the criteria involved requiring the child to ascend one rung, then two rungs, then three rungs, etc. as outlined in the instructional task step (figure 11*). That is, one rung ascended using alternating feet constituted successful completion of task step six, two rungs task step seven, etc. Introduction of this revision resulted in considerable progression as indicated in the child's progress sheet (figure 11).

The revision to the task-analyzed instructional sequence was necessary both for the instructor and the learner. Demonstrable progress must be observed by the instructor to maintain enthusiasm while teaching. The revision to the instructional sequence made the goal attainable for the child, therefore not resulting in deprivation of reinforcement.

ASCENDING A LADDER SUBJECT 9

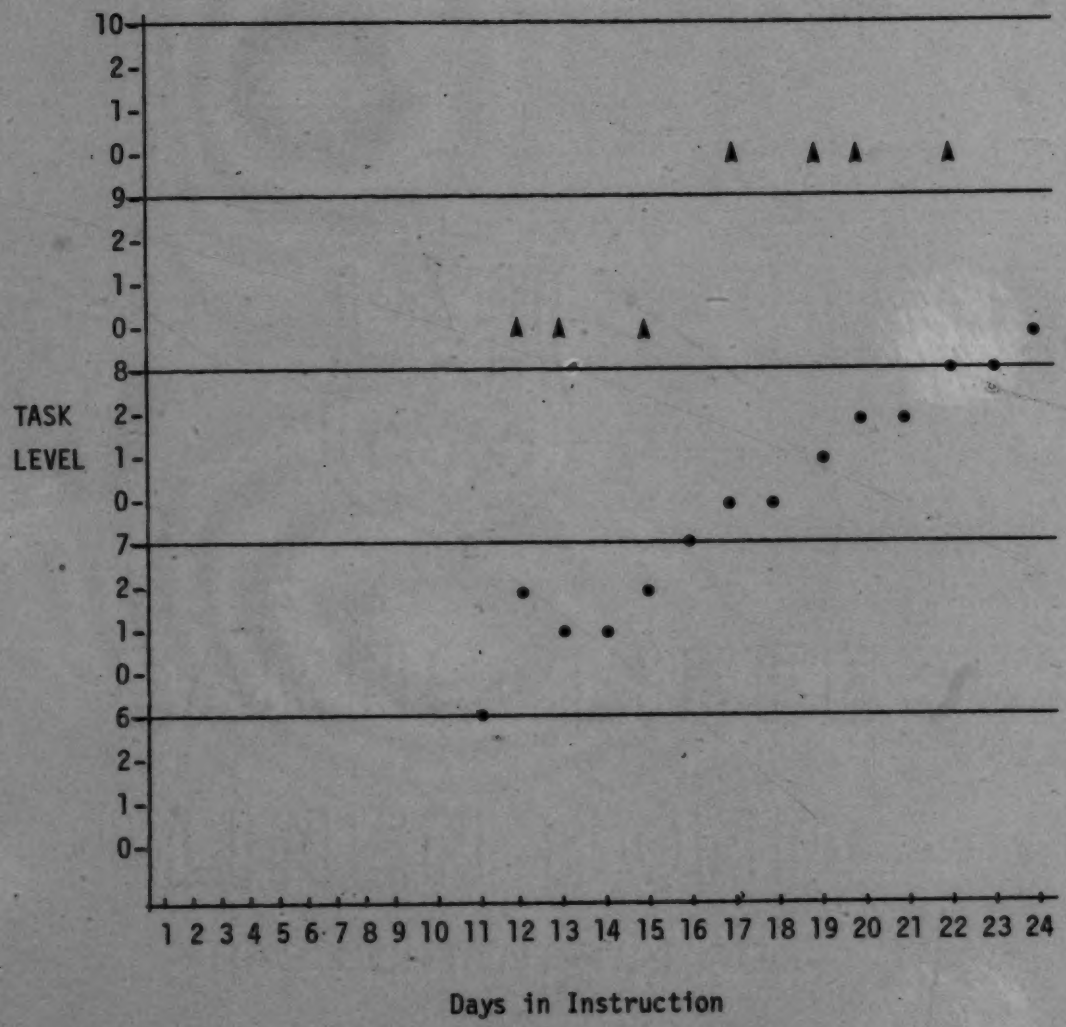


FIGURE 12

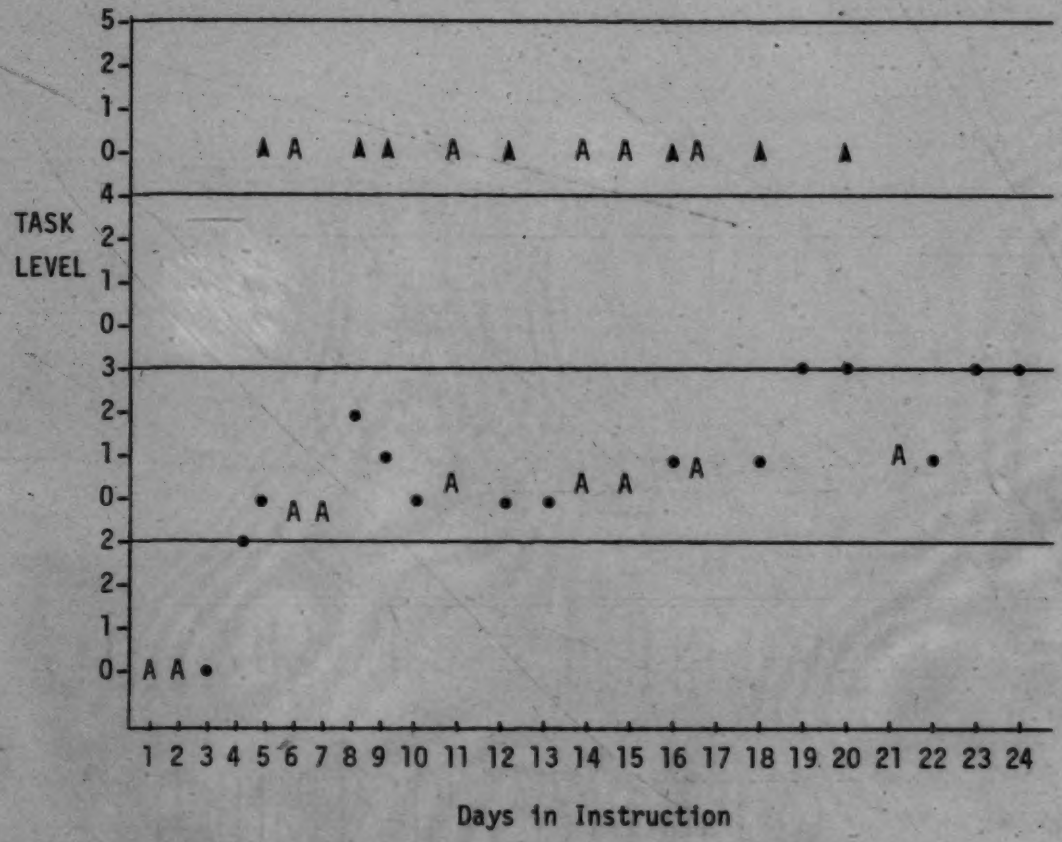
● Child performance

▲ Probe test

Subject 9

Introduction of this child to receiving instruction in ascending a ladder occurred mid-program. The above mentioned revisions to the sequence had been made. Observation of this child's progress sheet (figure 12) demonstrates a smooth and consistent progression through the instructional sequence. The supposition exists that the change in the sequence was responsible for the performance curve.

ASCENDING A LADDER SUBJECT 10


TASK LEVEL
5
2
1
0
4
2
1
0
3
2
1
0
2
2
1
0
A A A

Subject 10

This child possessed no skill in ascending a ladder prior to program implementation. Assessment results indicated that he was only able to ascend the ladder, marking time, in a hand-hand, foot-foot manner with total manipulation provided by the instructor. As indicated by the progress sheet (figure 13), the child demonstrated a lack of progress in the acquisition of task step three. Motivation appeared to be a reason for this lack of progress. During instruction, it was noted that if the child's feet were manipulated onto the bottom ladder rung, the child would ascend the ladder with minimal prompting. However, the child would not place his feet onto the bottom rung with any less assistance than total physical manipulation.

The child successfully completed the criteria requirements for task three on the nineteenth and twentieth days of instruction (figure 13). On these two days, the instructor had placed a puzzle, a powerful reinforcer for this child, on the top ledge of the climber. The following instructional day, the instructor did not utilize the puzzle as a reinforcer. Observation of the child's performance on this day (figure 13), shows a decline in performance and failure to meet criterion standards. The use and nonuse of the reinforcer seems to be responsible for the successful and unsuccessful performance attempts of this child.

The child's performance level again rose and the child successfully completed task step three. No reinforcers were employed on these final two days of instruction. The supposition exists that because the child had previously completed the skill with minimal assistance, the skill of ascending the ladder was present and the child was intrinsically motivated

to perform the task.

Revisions to the Instructional Sequence

As previously mentioned, the quantitative criteria for ascending the ladder using a hand-foot, hand-foot sequence (task step 6) should be decreased to successful completion of the task on one rung, two rungs, three rungs, etc.

The criterion for each task step excepting task step one, could be revised as suggested for task step six. This procedure would place lesser transition demands upon the child and provide the instructor with a graph demonstrating observable rates of progress. The revised sequence could be written as task step two, level a, b, c ... n, the levels referring to the number of rungs the child must ascend following the guidelines presented in the task step. That is, level a = one rung; level b = two rungs ... level n = the nth rung of the ladder. This format of sequencing the materials would eliminate the redundancy of writing the same task step for each of the ladder rungs and also prevent the sequence from containing an unrealistic number of task steps, fifty-two in this case.

Subject: 12

Residence: Home

Birth Date: 10/5/74

Date of Program Entry: 19/9/77

Tarc Assessment Score: 68/194

Uzgiris Hunt Scale: 8-12 months
Spatial relations : 24 months

Medical Diagnosis - hearing deficit
- language delay
- behavior problems

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running	x		
Jumping	x		
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)	x		
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)			x
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)			x
Riding a Tricycle		x	

Comments: This child is very physically active.

During free play time, he is found to spend the majority of time jumping on the trampoline. Often it is difficult to remove him from the trampoline for instructional purposes. If he is taken from the trampoline he often becomes upset and instruction is consequently hindered.

The child generally concedes to the directions of his classroom teachers. However, he often runs away from persons other than his teachers if they attempt to communicate with him. This had a definite effect on probe testing.

TRICYCLE RIDING SUBJECT 12

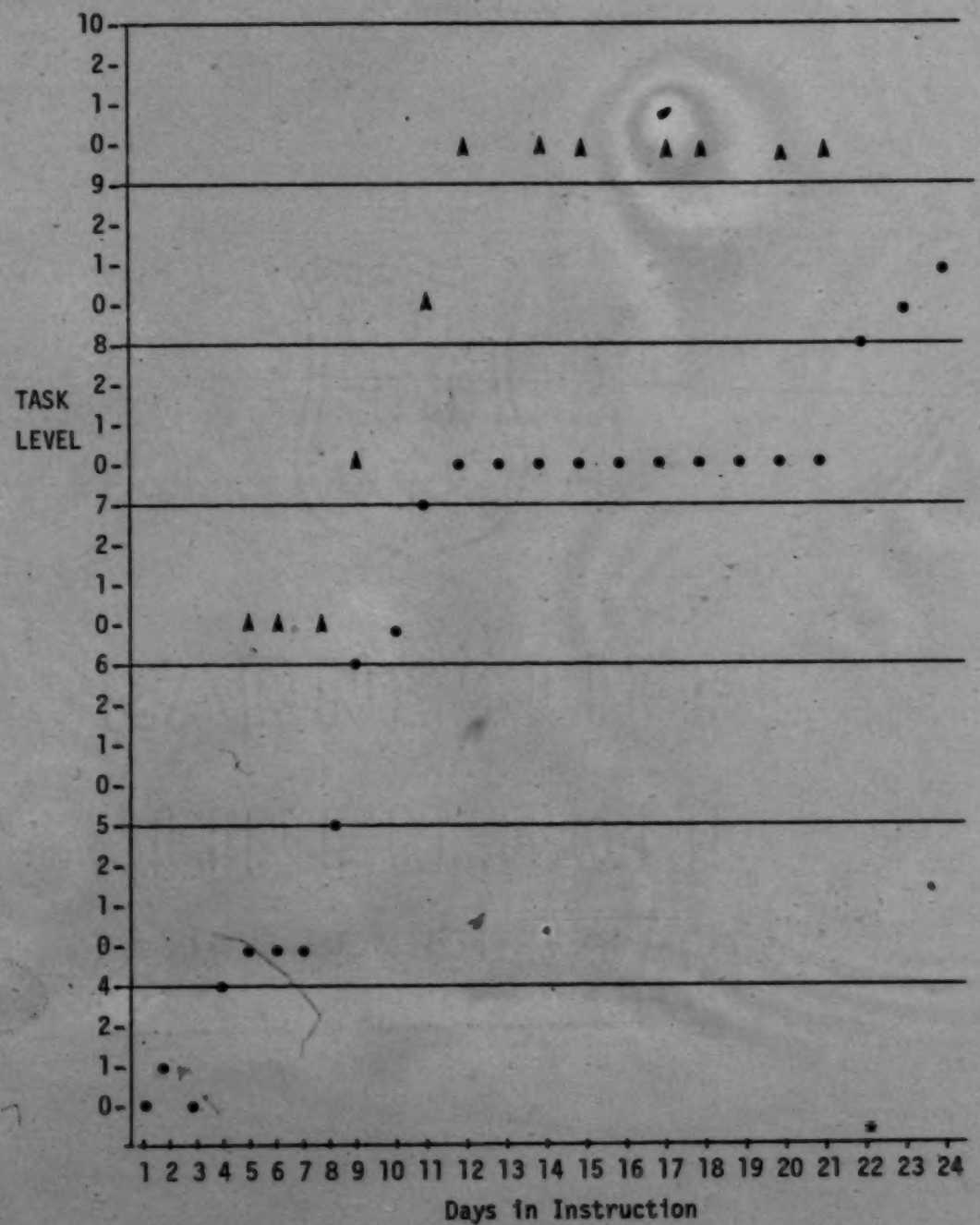


FIGURE 14

- Child performance
- Probe test

Riding a Tricycle

Subject 12

Initial assessment of this child's skill level indicated that the child was able to push down on each pedal after the instructor had started the trike in motion (task step 3). The child progressed through the subsequent four steps of the task-analyzed instructional sequence encountering no difficulties (task steps 4 through 7). Ten days of instruction were spent helping the child learn to push down on each pedal with an environmental prompt (task step 8).

The child often exhibited "tantrum-like" behaviors which certainly affected the rate of learning. The child had been receiving instruction in this skill since the onset of the final program phase and the lack of novelty may have also contributed to the lack of progress.

On the twenty-second day of instruction (figure 14*), the instructor took the child outside for tricycle riding. The child immediately completed the standards set for task step eight. Subsequent instructional periods were held outdoors and the child's performance level appeared to be steadily increasing.

The outdoor conditions appeared to have a positive influence on this child's performance, emphasizing the importance of the environment when learning gross-motor skills.

Subject: 13 Residence: Home

Birth Date: 2/11/72 Date of Program Entry: 9/1/78

Tarc Assessment Score: 84/194 Uzgiris Hunt Scale: 12-18 months

Medical Diagnosis - childhood autism
- seizure disorder

	Competent	Receiving Instruction	No Skill Requires Instruction
Pre-Locomotor Skills			
Crawling	x		
Standing Unsupported	x		
Locomotor Skills			
Walking Supported	x		
Walking Unsupported	x		
Running	x		
Jumping			x
Ascending Stairs (unskilled)	x		
Ascending Stairs (skilled)	x		
Descending Stairs (unskilled)	x		
Descending Stairs (skilled)	x		
Specific Equipment Skills			
Ascending a Ladder (unskilled)	x		
Ascending a Ladder (skilled)			x
Riding a Tricycle		x	

Comments: This child is physically active and possesses the majority of motor skills in his repetoire. During free play time, he initiates many activities.

The child often exhibited tendencies to resist instructors. However, the instructor always maintained control and the child complied with the instructor. This conflict did not appear to interfere with the child's performance during instruction.

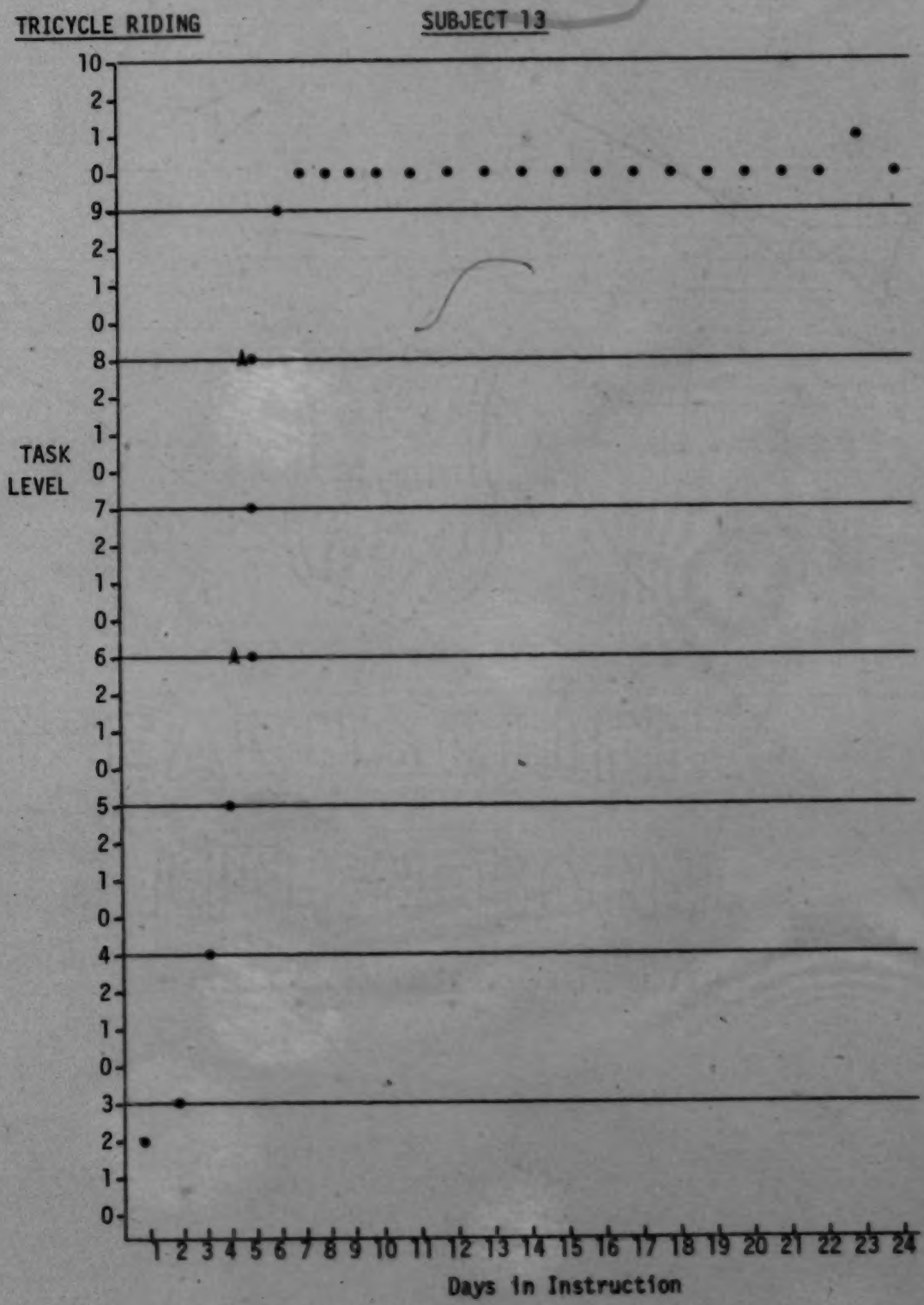


FIGURE 15

• Child performance

▲ Probe test

Subject 13

The results obtained from the initial assessment of this child's skill level indicated that the child could push one pedal down once the instructor had started the tricycle in motion (task step 2). Instruction therefore began at task step three. As indicated on this child's progress sheet (figure 15), the child progressed through seven task steps (task steps 3 through 9) within six instructional days. Probe test results indicated that the child was able to successfully complete the task step two levels above the one in which he was receiving instruction.

The obvious error occurred in the initial assessment of the child's skill level. The consistent and rapid increase in skill level attainment indicates that the child was able to ride a tricycle prior to program implementation.

The child encountered difficulty when learning to steer the tricycle to avoid obstacles (task step 10). However, it appeared as though the child would deliberately ride the tricycle into obstacles and instruction could not remedy the situation. The perpetual riding into obstacles, however, resulted in the child acquiring the skill of pedalling the tricycle backwards.

Revisions to the Instructional Sequence

The results obtained from the two children who received instruction in tricycle riding do not warrant any changes in the instructional sequence at this time.

The instructors were formally interviewed at the termination of the program. Open-ended and structured questions were asked. General aspects of gross-motor programs and specific questions regarding the program materials and recording procedures were covered in the interview.

General

Question 1. How much time should be available for gross-motor activities each day for the children in your class?

Answer Four of the instructors agreed that one hour minimum should be available for gross-motor activities. The teachers emphasized that the time should be equally divided into two sessions, one in the morning and one in the afternoon. The other instructor, responsible for gross-motor activities for the entire class, reported that she would like to have two to three hours of gross-motor activity periods each day.

Question 2. What time of day would be best for a gross-motor program period?

Answer The instructors unanimously agreed on the morning as the best time for a gross-motor program period.

The importance of gross-motor activities, as an integral part of the daily curriculum, was evident in the instructors' responses. The morning, the time selected by the instructors as the optimal time for instruction, indicates an awareness of the necessity for being physically alert in order to have effective gross motor instructions.

Instruction

Question 1. How long would you like to spend in instruction with each child on one specific skill?
Less than 5 min. ____ 5-10 min. 20%
10-15 min. 60% More than 15 min. 20%

Answer Three of the instructors reported that ten to fifteen minutes would be sufficient instructional time for one child. One instructor stated five to ten minutes would be sufficient time. The other instructor reported that she would like to spend fifteen to twenty minutes with each child.

Question 2. How many skills would you like to see each child assigned? 1 2 3 4

Answer Four of the instructors agreed that each child should be assigned two skills for individual instruction. The other instructor, responsible for the gross-motor activities of the entire class, nine children, suggested one skill per child would be sufficient.

Question 3. What is the optimal number of children you would like to work with during an instructional period?
1 2 3 4

Answer Three instructors expressed that three children would be an optimal number for one instructional period. One of the instructors stated that she would like to work with only one child each instructional period. This instructor has only been exposed to working with one child on gross-motor activities during the instructional period. The other instructor expressed a desire to accommodate the entire class. Her reply was to work with five children, break, and then work with four children.

Question 4. How many days per week would you like to work with the children on the program materials? 1 2 3 4 5

Answer Four instructors agreed on three days each week, the other stated four days per week for working with the children on the program materials.

Question 5. How long would you like to work on the program materials each instructional day? Less than 30 min. ___
30 min. 60% 45 min. ___ 1 hour 20%
More than 1 hour 20%

Answer Three of the instructors reported that they would like to work thirty minutes each day on the program materials. One instructor stated one hour would be an optimal time to work on the program materials.

The other instructor reported that she would like to work one hour to more than one hour on the instructional materials to accommodate her entire class.

The responses to the questions referring to instruction indicate the teachers' sensitivity to individual differences among the children. The amount of time spent in individual instruction and the number of skills assigned to each child for instruction are the most demonstrative examples of the abilities and limits of each child.

Task Sequences

Question 1. What task sequences (gross-motor skills) are most important for your class?

Answer Two instructors expressed the importance of walking for the non-mobile child. The other three instructors listed the skills of jumping, riding a tricycle, running, climbing a ladder and descending stairs as being important for the children in their classes.

Question 2. What factors did you consider when answering the above question?

Answer The first two instructors stated that the objective of their room was to get the children mobile so they could be transferred to other classrooms. The three other instructors expressed the importance of teaching the children skills which they could use in outside environments. One instructor stated that the skills are required to function in a culturally normative environment. Another instructor stated that the skills aided the children to develop in terms of independence.

Question 3. Were the task sequences helpful for instruction?

Answer The instructors unanimously agreed that the task sequences were helpful for instruction.

Question 4. Were the task sequences appropriate for the children in your class? 1 2 3 4 5 (rank)

Answer All five instructors rated the sequences at 4 in terms of their appropriateness for their classes.

The skills selected for instruction by the teachers demonstrated a concern of the teachers to aid the children in total development as well as in physical development.

The rationale expressed indicated a commitment by the instructors to teach for a purpose.

Task Analysis Method

Question 1. How valuable is the task analysis method in structuring the program skills into teaching progressions for use with your class?
Not valuable ____ Little value ____ Some value ____
Valuable ____ Very valuable ____

Answer Three of the instructors ranked the value of the task analysis method as valuable, the other two instructors as very valuable.

Question 2. Does the importance of the task analysis method change with the ability level of the children in your class?
Yes ____ No ____ Why?

Answer Three instructors reported that the importance of task analysis changed with the ability levels of the children. One instructor stated that task-analysis was more functional with higher level children. The other two instructors stated its importance with the lower level children as they require detailed task analysis. Two instructors reported that the importance of the concept of task analysis does not change with the ability levels of the children but skills must be task-analyzed according to the ability levels of the children.

Question 3. How do you like the format of the task sequences? That is, child behaviors/teaching behaviors/teaching suggestions. 1 2 3 4 5 (rank)

Answer Four instructors ranked the format of the task sequences at 4, the other instructor at 5.

Task analysis was considered a valuable method for teaching children motor skills. Some instructors indicated a change in the value of the task analysis method for children of different ability levels. This response may have reflected a concern for the development of instructional materials to compensate for the individual differences found within groups of children. The other instructors clearly stated that the task analyzed instructional materials must suit the level of child performance.

Recording

Question 1. What is your overall reaction to recording your work with the children? 1 2 3 4 5 (rank)

Answer All the instructors ranked their reaction to recording at 4 and expressed the importance of recording for evaluation purposes.

Question 2. How much time does recording of a child's progress on a task sequence take? Less than 15 secs. ____
15 secs. ____ 30 secs. ____ 45 secs. ____
60 secs. ____ 90 secs. ____ 120 secs. ____
More than 120 secs. ____

Answer The answers were varied, one stating less than 15 seconds, two stating 30 seconds, one stating 60 seconds and the other 120 seconds.

Question 3. How valuable is the recording of the progress of the children on each task sequence? 1 2 3 4 5 (rank)

Answer Three of the instructors rated the value of recording at 4, two instructors at 5. The instructors agreed that recording was important to see the progress of the child.

Question 4. How often should the children's performance be recorded? Less than once/day ____ Once/day ____ Each instructional day ____ Twice/Week ____ Once/Week ____ More than once/week ____

Answer The instructors agreed that the children's performances should be recorded each instructional day.

Question 5. When do you feel is the most valuable time for recording the children's performances? Before instruction ____ During instruction ____ Immediately following instruction ____ End of class ____ End of day ____ Other ____

Answer Four of the instructors reported that recording should occur immediately following instruction. The other instructor stated that recording should occur before instruction, after the child has been formally tested.

Question 6. How effective is the process of testing prior to teaching? Ineffective ____ Effective ____ Very effective ____

Answer The five instructors found testing before instruction effective as it allowed them to know where the child was performing in the task sequence. Two instructors expressed a concern that testing often interfered with instruction and that the child was placed in a situation where he was forced to perform.

Question 7. Do you have any problems recording? If yes, why?

Answer None of the instructors expressed any difficulties in recording.

The method of recording had been considerably simplified for the final project phase. The time and the amount of information required for recording had been decreased and the instructors found that recording

did not take a large amount of time. The teachers expressed the importance of recording for evaluation purposes as well as to see child progress.

The method of testing prior to instruction, and recording only those results, proved to be an effective and successful means of recording.

Other Questions

Question 1. How did you like having a person, such as myself, present as a consultant? 1 2 3 4 5 (rank) Give reasons for answers.

Answer Four of the instructors ranked the presence of a consultant at a 5, the other at 4. Providing guidance and assistance in teaching procedures were two assets expressed by all the teachers. The instructors also saw the consultant as a resource person to provide training, give ideas and aid in the immediate solutions of problems encountered.

Question 2. Did you find that my acting as a consultant was helpful to you learning and using the program materials effectively? Not helpful ____ Helpful at times ____ Helpful ____ Very helpful ____

Answer The instructors reported that the consultant was very helpful in aiding them to learn and use the program materials effectively.

Question 3. Other comments?

Answer Instructor 1
This instructor considered the program to be a beneficial experience for the children in her class as well as for herself. The program was successful as her children learned to walk. This instructor felt that more child care workers should receive program training so all the classrooms could benefit from structured programs. A concern for the integration of group activities into the program was also expressed.

Instructor 2
This instructor also considered the program to be a successful and beneficial experience, both for the children and herself. The importance of the acquisition of locomotor skills for the free exploration of the environment was also expressed. The instructor found

the program materials easy to follow and not time consuming. This instructor also expressed the desire to partake in other gross-motor instructional programs.

Instructor 3

This instructor found the program to be beneficial for the children in her class. The importance of individual instruction and attention was emphasized. The instructor felt the skills selected for instruction were important as acquisition of these skills allowed the child to partake in activities in outside environments.

Instructor 4

This instructor reported that the program provided an opportunity for the children to learn culturally normative skills. It was stated that the instructional sequences did not always coincide with the needs of the children and that the sequences have to be made more flexible to accommodate the needs of all the children. The instructor also expressed a concern for the need of more instructional time in outside and natural environments.

Instructor 5

This instructor stated that the program was beneficial for the development of the children in her classroom. The instructor emphasized the need for structured gross-motor instructional programs.

DISCUSSION

On the basis of the children's performances through the task sequences, the program materials were considered successful for the majority of the children. As stated previously, the criteria established for success was the completion of two task steps. Eight of the thirteen children demonstrated success and two of these eight children demonstrated success on two instructional sequences. One child successfully completed five task steps, three children progressed through four task steps, four children progressed through three task steps and two children progressed through two task steps. It is recognized that differences in task difficulty between instructional sequences must limit the generalizability of this finding. Generally however, even with the wide individual variations in subject capabilities, considerable learning took place. One factor which lead to the success of the program materials was the relatively small task demands within each task step which facilitated child progress through the instructional sequences. Also, the increments in task difficulty generally seemed appropriate for the performance capabilities of the children. However, some changes within certain task sequences, as included in the PREP PRIMER Manual (Wall, Watkinson, Friesen, Shatz, Hoy and Hunt, 1978) and as directed by further research, are needed to accommodate the individual capabilities of severely mentally retarded children. Also, further development of task-analyzed instructional sequences is needed to encompass a greater range of motor skills.

As stated by Altman, Talkington and Cleland (1972) and Das (1978), severely mentally retarded children possess attentional deficits and are often unable to attend to relevant stimuli in the environment. General observation by the author which was supported by the children's

teachers, indicated that three children had severe attentional difficulties which definitely interfered with instruction. Two of these three children failed to demonstrate progress through the task sequences. The other child demonstrated progress through the instructional sequence, however, this progress was attributed to the introduction of primary reinforcers. Therefore, it is essential that individual instruction programs include means by which to prompt for attention. The above observation has been recognized in recent revisions of the PREP Primer Manual where teacher behaviors for gaining student attention have been developed for use with severely mentally retarded children (Wall, et al., 1978).

Video analysis of pilot project data demonstrated that a large number of the severely mentally retarded children rarely initiated purposeful play activities in a free play setting. These findings are similar to those found with moderately mentally retarded children (Austin and Wall, 1975; Noble, 1975). Of these nine children, four of them did not possess the motor skills required to be actively involved in play activities, that is, they were receiving instruction in mobility skills such as crawling and walking. The remaining five children were physically mobile, however, they tended to choose to be onlookers or be involved in nonpurposeful activities such as sitting or standing. Therefore, it was essential to find suitable reinforcers that would be effective in motivating the children to perform motor tasks. In some instances suitable reinforcers were found that motivated the children to perform motor skills; however in one case (subject 1) several types of reinforcement techniques were tried, none of which proved to be sufficiently motivating for any length of time.

As discussed by Wheman (1977), some children required continual verbal and/or physical prompting to maintain continued performance of a motor task. A major goal of instruction is to teach children motor skills in such a manner that they will be intrinsically motivated to initiate these skills once they have acquired them. Therefore, reinforcers should be used during instruction to help motivate the child to learn a skill and then be gradually faded as the child increases in skill proficiency. Once these children have acquired some play skills, it is crucial that play environments be available that encourage purposeful play. Therefore, the planning and structuring of suitable play environments is an essential part of any instructional program.

Behavior problems was another difficulty encountered in this study. As observed by the author and confirmed by the children's teachers, three children exhibited behavior problems. All three of the children were very physically active and initiated play activities. However, the activities that they initiated were always the same, for example, subject 12 was always jumping on the trampoline during free play periods. The behavior problems were evident when the instructors would remove the children from the favorite activity in which they were involved. The children often rebelled in a tantrum-like manner or exhibited very uncooperative behaviors. Skills in applied behavior analysis techniques were needed on the parts of the instructors in order to effectively approach and control these problems. However, no programs in behavior control were included in this study. As discussed by Watkinson (1976), mentally retarded children do exhibit behaviors that are incompatible with learning and these behaviors must be controlled before effective instruction in other skill areas can occur.

Post program analysis of the children's progress data demonstrated that a number of children spent an extended length of time at one task level, which ranged from ten to twenty instructional days. With the majority of children (ten of the eleven), an increase in performance level was found when a change was made in the instructional sequence, a reinforcer was introduced or as in the case of one child, after there was a change in the teaching environment. Prior to the onset of the final implementation phase, a criteria should have been established for the maximum number of instructional days a child could spend at any one task step. Except for in the case of one child who exhibited severe behavior problems, six days was the longest time a child spent at one task level before successfully completing that task step after a change had been made in the instructional sequence or instructional methods. There are no firm guidelines that can be followed to establish a criteria for the maximum number of days that a child should be permitted to remain at one task step before changes are made in the instructional methods or materials. However, from the results of this study, six days appears to be a suitable initial criterion.

The following discussion is based on the results of the teacher interviews. It should be recognized that the teachers had considerable experience working with these children and were willing to provide constructive criticism when necessary; therefore, their opinions should carry considerable weight in the overall evaluation of the materials. The instructors found the program materials to be effective in teaching the children at the Elves Memorial Child Development Centre gross motor skills. The appropriateness of the task sequences, for the capabilities of the children, was ranked at four, on a scale of one to five. This

response indicates the instructors' sensitivity to the wide individual differences found among severely mentally retarded children and that sometimes changes must be made within the sequences to help accommodate the individual needs of the children. Instructional materials must be flexible enough to allow for individual differences, but simultaneously maintain enough structure to foster effective teaching.

The format of the task analyzed instructional sequences used in the final implementation phase were accepted favourably by the instructors. The format of the task sequences developed for the second pilot project contained a high degree of non-functional specificity and were not appropriate for use by the instructors.

All five of the instructors agreed that appropriate recording of the children's progress was important. Recording is essential for evaluation purposes; however, the time restraints of recording must be reduced to satisfy the instructors and encourage the instructors to record. The teachers found the process of testing prior to initiating instruction a valuable method for obtaining data on child progress and for the establishment of an appropriate starting point for each day's instruction. Two reservations were expressed regarding these testing and recording procedures. Often a child was required to perform a skill at a specified time and therefore, sometimes did not perform at their level of competence. Also, some of the instructors felt that three formal test trials often reduced greatly the amount of instructional time.

The instructors indicated a need for a consultant in the field of gross motor development with severely mentally retarded children. Based on the instructors' responses to this need, as well as the results

of the children's performances, the role of a consultant should include:

1) developing task-analyzed instructional materials designed for the capabilities of the children,

2) providing guidance, leadership, reinforcement and encouragement to cooperating staff members during program implementation,

3) indicating ways in which applied behavior analysis principles can be used within the program to control or extinguish uncooperative child behaviors,

4) providing information to instructors on how to match teaching behaviors to the widely differing needs of severely mentally retarded children,

5) formatively evaluating the program materials and when required, making relatively immediate changes in the instructional materials to facilitate child progress, and

6) providing intense instructor training programs prior to the onset of the program, to familiarize the instructors with the program materials and method so that they can effectively and efficiently implement the program. Also, the consultant should encourage the instructors to adhere to the program methods so that a true indication of program effectiveness can be obtained.

Overall, the instructors found the program to be beneficial to both themselves and the children and expressed a desire to be involved in future gross-motor instructional programs.

Based on the opinion of the author, probe testing was valuable in determining, to some extent, the ordinality of the task sequences. Probe testing was implemented during the final implementation phase, however

the probe test results were not used until the end of this project phase, when they were used to help guide revisions to the instructional sequences. The results of the probe tests should be used throughout program implementation phases to help guide relatively immediate changes in the instructional materials in order to facilitate child progress. A criterion should be established for a maximum number of days that a child can be successfully completing any of the probe test trials (that is, 1, 2 or 3) without successfully completing the task on which they are receiving instruction. No firm guidelines are provided to help establish this criterion, however, three days appears appropriate and could be used as a starting criterion.

CONCLUSIONS

Within the limits of this study the following conclusions seem justifiable. As indicated in the introductory chapter, the major purpose of this study was to develop, implement and formatively evaluate task analyzed instructional sequences designed to teach young severely mentally retarded children selected gross motor skills. On the basis of the teacher interviews, the following conclusions were made:

1) The instructional materials and methods used during the final implementation phase were effective. The factors which contributed to the effectiveness of the program were:
   a. the format of the instructional sequences: that is, the use of key words and short phrases to describe the child and teacher behaviors.
   b. the process of testing prior to instructing,
   c. recording the number of successful attempts on the test trials provided sufficient data for evaluation of the instructional sequences.

Within the limits of this study and recognizing the wide individual differences found among severely mentally retarded children, the following conclusions can be drawn based on the children's performances:

1) Generally, the instructional sequences required performance demands appropriate to the skill levels of the children. The relatively small task steps facilitated child progress through the instructional sequence.
2) The increments in task difficulty generally seemed appropriate to the performance capabilities of the children.
3) Changes within certain task sequences are still required to

accommodate the individual capabilities of severely mentally retarded children.

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APPENDIX 1

RECORDING FORMS

PILOT PROJECT I.

DAILY RECORD FORM

NAME: _____

MONTH: _____

	TPO _____			TPO _____			TPO _____		
	TASK	RESPONSE LEVEL	TIME/ NUMBER	TASK	RESPONSE LEVEL	TIME/ NUMBER	TASK	RESPONSE LEVEL	TIME/ NUMBER
WEEK 1									
WEEK 2									
WEEK 3									
WEEK 4									

APPENDIX 2

INSTRUCTIONAL OBJECTIVES

Popham (1970) has defined an instructional objective as a future behavioral response in the learner's repertoire that the instructor plans to develop. In order to measure accurately an instructional objective, the objective must be specifically defined in observable, measurable behavioral terms. If one describes the performance of a motor skill only in terms of factors such as time, repetitions and distance, one does not adequately describe the performance but simply sets standards for the completion of the product resulting from the execution of the skill. In contrast, attempts to measure the qualitative aspects of a performance are concerned with the syntax of movement, which refers to the spatial and temporal constraints under which a skill is performed.

Since the true product in the movement domain is the skilled performance, one must adequately describe the qualitative characteristics of the skilled performance. For example, a behavioral objective may be described as "child bends knees and jumps down from a knee-high height, two foot take-off, two foot landing with teacher prompting on the take-off". In this example, the qualitative characteristics of the child behavior are sufficiently specified, however, what constitutes "teacher prompting on take-off?" is unknown. More explicitly defined, the behavior may be expanded to "teacher holds the child's hands and pulls down until the child bends his knees, the teacher then releases the child's hands and holds out her hands for the child to jump". As the task is now defined, it is possible to evaluate reliably the quality of the movement.

For a stated objective to be a reliable measure of the performance, interobserver agreement must be high (Bijou et al. 1969; Kazdin, 1977). As the clarity of a stated objective increases so should the agreement

between observers. However, one must consider the optimal degree of specificity in terms of the trade-off between specificity and utility. Previous experience has indicated that instructors are not motivated to follow highly specified instructional task sequences (Wall and Friesen, 1977). General instructions, utilizing key words and phrases have been found to produce more satisfactory results.

Evaluation of instructional objectives may be formative or summative. Formative evaluation is the process of evaluating the program materials during the ongoing phase of the program and making relatively immediate changes in the program materials. Formative evaluation is primarily concerned with the extent to which the stated instructional objectives have been met, but also gives immediate feedback regarding the feasibility of effectiveness of the program methods and materials (Gagné, 1973). Conversely, summative evaluation is undertaken at the termination of the program. The program results are compared to the initial objectives allowing the evaluator to make conclusions regarding the total effectiveness of the program (Gagné, 1973).

Criterion-referenced testing involves comparing an individual's performance in relation to a sequence of behaviorally-defined performance objectives. In contrast, norm-referenced tests compare an individual's achievement on a test in relation to the achievement obtained by a norm group of performers who have previously taken the same test (Baine, 1978). Because norm-referenced tests are based on norm performances, they do not have content validity for any group that deviates significantly from the national norm (Baine, 1978).

Optimally, an individual should be tested every instructional day to provide a continuous performance record reflecting all changes in the individual's behaviors. According to Baine (1978), testing should be conducted in the playroom setting to get a typical behavioral response, not a clinical response. The process of testing and recording provides both the instructor and learner with feedback regarding their respective performances, allowing for formative evaluation of the program materials to occur. Furthermore, criterion standards for successful completion of a task must be sufficient to demonstrate a representative sample of the performance and to reliably demonstrate that successful completion is not by chance.

Recorded results of testing can be graphically represented for visual analysis. The dependent variable may be plotted along the horizontal or vertical axis. In either situation, it is possible to see progress or lack of progress in the acquisition of the skill indicating a need for the addition or removal of task steps.

Probe testing, the process of testing an individual at a level above which they are currently receiving instruction, is a useful technique for determining, to some extent, the ordinality of an instructional sequence (Horner and Baer, 1978). If an individual performs successfully on the probe test, it can be assumed that the task steps are not in sequential order and/or the task step at which they received instruction is not a prerequisite skill for the "probe" task step. If an individual fails to successfully complete the "probe" task step, the ordinality of the instructional task step and the "probe" task step has been demonstrated.

APPENDIX 3

Task Analyzed

Instructional Sequences

PILOT PROJECT II

Gross Motor Skills — Child Development Centre

To Attain a Crawling Position

To Crawl

To Pull Up to a Supported Stand

To Stand Unsupported

To Walk Supported

To Walk Unsupported

To Ascend Stairs

To Descend Stairs

To Ascend a Ladder

To Descend a Ladder

To Jump Down

To Pedal a Tricycle

To Jump on a Trampoline

Crawling

Starting Conditions: A toy with which the child enjoys playing should be selected as a goal object.

The toy should be flexible and flat.

Pre-Entry Behaviors: The child must be able to attain a crawling position.

Starting Position: All task movements begin with the child in a crawling position (on hands and knees).

Task 1. Instructor grasps child's wrist and moves child's arm forward to place his hand flat on a toy which is situated 6-10" in front of the child's reaching hand. The child should shift his weight forward and onto his reaching hand. The task is to be performed 3 times with each hand.

2. A toy is placed 6-10" in front of the child's reaching hand. The instructor is in front of and facing the child. The instructor prompts the child to place his hand flat on the toy by tapping or applying pressure to the child's elbow. As the child reaches for and places his hand flat on the toy, his weight is shifted forward and onto his reaching hand. The task is to be performed 3 times with each hand.

3. A toy is placed 6-10" in front of the child's reaching hand. The child reaches forward and places one hand flat on the toy, without physical assistance, thereby shifting his weight forward and onto his reaching hand. The task is to be performed 3 times with each hand.

4. A toy is placed 6-10" in front of the child's reaching hand. The child reaches forward and places one hand flat on the toy, without physical assistance, thereby shifting his weight forward and onto his reaching hand. The instructor then moves the child's opposite leg forward so that the child supports his weight on both the reaching hand and forward knee. The instructor accomplishes this by grasping the front of the child's thigh and under the child's shin and manipulating the limb forward. The task is to be performed 3 times with each hand and leg.

5. A toy is placed 6-10" in front of child's reaching hand. The child reaches forward and places one hand flat on the toy, without physical assistance, thereby shifting his weight forward and onto his reaching hand. The instructor then prompts the child to move his opposite leg forward by applying pressure to or tapping the back of his thigh, thereby shifting the child's weight over both the reaching hand and forward knee. The task is to be performed 3 times with each hand and leg.

6. A toy is placed 2 "hand steps" (approximately 14-18") in front of child's second reaching hand. Child reaches forward (6-10") with one hand and places it flat on the ground and then moves opposite leg forward without physical assistance. The child has shifted his body weight over this reaching hand and forward knee. The child then reaches forward and places his other hand flat on a toy and moves his opposite leg forward without physical assistance. The child has consequently shifted his weight forward and over both the second reaching hand and forward knee. The task is to be performed 3 times with each hand and leg.

7. Same as #6 except the child crawls for 2 full steps in succession. The task is to be performed 3 times. The toy is placed so that the child can touch it when he takes the second step with his second hand.

8. Same as #6 except the child crawls for 3 full steps in succession. The task is to be performed 3 times. The toy is placed so that the child can touch it when he takes the third step with his second hand.

9. A toy is placed 6-10" in front of the child's reaching hand. As the child reaches forward to retrieve the toy, the instructor lifts his opposite leg, by grasping the front of the child's thigh and under his calf, and moves it forward. The two movements occur simultaneously and the child's weight is shifted forward and onto the child's reaching hand and forward knee. The task is to be performed 3 times with each hand and leg.

10. A toy is placed 6-10" in front of the child's reaching hand. As the child reaches forward to retrieve the toy, the instructor prompts the child to move his opposite leg forward by tapping the back of the child's thigh. The child's weight is shifted forward and onto the child's reaching hand and forward knee. The task is to be performed 3 times with each hand and leg.

11. A toy is placed 2 "hand steps" (approximately 14-18") in front of the child's second reaching hand. As the child reaches forward with one hand and places it flat on the ground, the instructor prompts the child to move his opposite leg forward by tapping the back of his thigh. The child's weight is shifted forward and onto the child's reaching hand and forward knee. The child then reaches for the toy with his second hand and places it flat on the toy. Simultaneously the instructor prompts the child to move his opposite leg forward by tapping the back of the child's thigh. The child's weight is shifted forward and onto the reaching hand and forward knee. The task is to be performed 3 times.

12. A toy is placed 2 "hand steps" (approximately 14-18") in front of the child's second reaching hand. The child moves one hand forward and simultaneously moves his opposite leg forward unassisted. The child's weight is shifted forward and onto the reaching hand and forward knee. The child then reaches forward with his second hand to retrieve the toy and places his hand flat on it. Simultaneously the child moves his opposite leg forward, unassisted. The child's weight is again shifted forward and onto the reaching hand and forward knee. The task is to be performed 3 times.

13. A toy is placed approximately 3 feet in front of the child. The child performs task #12 twice in succession. The task is to be performed 3 times.

14. A toy is placed approximately 5 feet in front of the child. The child performs task #12 three times in succession. The task is to be performed 3 times.

15. The child is able to crawl 10 feet using simultaneous and alternating leg and arm action.

To Walk Unsupported

Starting Conditions: Two tables, approximately the child's waist height, should be used.

A flexible object such as a piece of rubber hose, a cloth, or a cloth wrapped in tape should be used.

A toy with which the child enjoys to play should be selected as a goal object and placed on the second table.

Pre-Entry Behaviors: The child must be able to stand and walk supported.

Task 1. Two tables are set one "child step" apart. The instructor places a flexible object in the child's hand and wraps the child's hand around it, thereby causing the child to firmly grasp the object. The instructor holds the cloth next to the child's hand and guides him, through the use of the flexible object to the second table. (The child is taking one step with only the support of the cloth.) The task is to be performed 3 times.

2. Same as #1 except the flexible object is held 2 inches from the child's hand. Task is to be performed 3 times.

3. Same as #1 except the flexible object is held 3-4 inches from the child's hand. Task is to be performed 3 times.

4. Same as #1 except the flexible object is held 5-6 inches from the child's hand. Task is to be performed 3 times.

5. Same as #1 except the flexible object is held 7-8 inches from the child's hand. Task is to be performed 3 times.

6. Two tables are set 2-3 "child steps" apart. The instructor places a flexible object in the child's hand and wraps the child's hand around it, thereby causing the child to firmly grasp the flexible object. The instructor holds the cloth next to the child's hand and guides him, through the use of the flexible object, to the second table. (The child is taking 2-3 steps with only the support of the cloth.) The task is to be performed 3 times.

7. Same as #6 except the flexible object is held 2 inches from the child's hand. The task is to be performed 3 times.

8. Same as #6 except the flexible object is held 3-4 inches from the child's hand. The task is to be performed 3 times.

9. Same as #6 except the flexible object is held 5-6 inches from the child's hand. The task is to be performed 3 times.

10. Same as #6 except the flexible object is held 7-8 inches from the child's hand. The task is to be performed 3 times.

11. Same as #6 except the flexible object is held 9-10 inches from the child's hand. The task is to be performed 3 times.

12. Two tables are set 4-6 "child steps" apart. The instructor places a flexible object in the child's hand and wraps the child's hand around it, thereby causing the child to firmly grasp the flexible object. The instructor holds the cloth next to the child's hand and guides him, through the use of the flexible object, to the second table. (The child is taking 4-6 steps with only the support of the cloth.) The task is to be performed 3 times.

13. Same as #12 except the flexible object is held 2 inches from the child's hand. The task is to be performed 3 times.

14. Same as #12 except the flexible object is held 3-4 inches from the child's hand. The task is to be performed 3 times.

15. Same as #12 except the flexible object is held 5-6 inches from the child's hand. The task is to be performed 3 times.

16. Same as #12 except the flexible object is held 7-8 inches from the child's hand. The task is to be performed 3 times.

17. Same as #12 except the flexible object is held 9-10 inches from the child's hand. The task is to be performed 3 times.

18. Two tables are set 4-6 "child steps" apart. The instructor places the flexible object in the child's hand and the child grasps the object firmly. The instructor holds the cloth 11-12 inches from the child's hand and guides the child through the use of the flexible object, to the second table. The task is to be performed 3 times.

19. Two tables are set 4 feet apart. The instructor places the flexible object in the child's hand and the child grasps the object firmly. The instructor holds the flexible object 13-14 inches from the child's hand and through the use of the flexible object, guides the child to the second table. The task is to be performed 3 times.

20. Same as #19 except the tables are set 6 feet apart. Therefore, the child is walking a distance of 6 feet with the support of the cloth. The task is to be performed 3 times.

21. Same as #19 except the tables are set 8 feet apart. Therefore, the child is walking a distance of 8 feet with the support of the cloth. The task is to be performed 3 times.

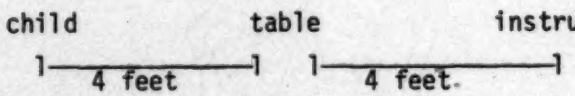
22. The instructor kneels 2-3 "child steps" in front of the child. The instructor holds out his arms for the child. The child is standing supported against a hard surface and facing the instructor. The child walks 2-3 steps unsupported to the instructor. The task is to be performed 3 times.

23. Same as #22 except the instructor is 4-6 "child steps" away from the child. The task is to be performed 3 times.

24. Same as #22 except the instructor is situated 4 feet away from the child. Therefore, the child is required to walk 4 feet unsupported. The task is to be performed 3 times.

25. Same as #22 except the instructor is situated 6 feet away from the child. Therefore, the child is required to walk 6 feet unsupported. The task is to be performed 3 times.

26. A table is set 4 feet away from the child. The instructor is kneeling 4 feet away from the table and is holding his arms out for the child. The child is standing supported against a hard surface and facing the instructor. The child walks 4 feet unsupported to the table. The child then walks along the table using it for support and then continues to walk 4 feet unsupported to the instructor. The task is to be performed 3 times.



27. Same as #26 except the table is set 6 feet from the child and the instructor is 6 feet away from the table. The task is to be performed 3 times.

28. Same as #26 except the table is set 6 feet from the child and the instructor is 8 feet away from the table. The task is to be performed 3 times.

29. Same as #26 except the table is set 8 feet from the child and the instructor is 8 feet away from the table. The task is to be performed 3 times.

30. Child walks 10 feet unsupported to a goal object on 3 occasions.

31. Child walks 15 feet unsupported to a goal object on 3 occasions.

Descending Stairs

Starting Conditions: A set of stairs (4-6) should be used. The steps should be approximately 4 inches high. Two handrails are recommended.

Pre-Entry Behaviors: The child must be able to walk supported. The child should be able to walk unsupported.

Starting Position: The child will stand on the 4th lowest step.

Task 1. The instructor places the child's hands on the handrails and wraps his hands around them so that the child grasps the railings firmly. The instructor removes his hands. The instructor then places the child's foot onto the next (3rd) step. This is accomplished by grasping the back of the child's calf and the back of the child's ankle and manipulating the child's limb forward and onto the step. The instructor then moves the child's hands forward along the railing. This causes the child's weight to be shifted forward and onto his front foot. The instructor then places the child's other foot onto the same (3rd) step, following the above procedures. The procedures are repeated until the child has descended the set of stairs.

2. The instructor places the child's hands on the handrails and wraps his hands around them so that the child grasps the railings firmly. The instructor removes his hands. The instructor then prompts the child to place one foot on the next step by tapping the back of the child's calf thereby causing the limb to move forward until it is no longer in contact with the 4th step. The child's foot should slip onto the next step. The instructor then moves the child's hands forward along the railings, thereby causing the child's weight to shift forward and onto his front foot. The instructor then prompts the child to place his other foot on the same step, following the above procedures. The procedures are repeated until the child has descended the set of stairs.

3. The instructor prompts the child to place his hands on the handrails by tapping the handrails and the child's arms. The instructor prompts the child to place one foot on the next step by tapping the back of the child's calf, thereby causing the limb to move forward until it is no longer in contact with the 4th step. The child's foot should slip onto the next (3rd) step. The instructor then prompts the child to move his hands forward along the railings by tapping the back of his elbows. The child moves his hands forward after the prompt thereby causing his weight to shift forward and onto his front foot. The instructor then prompts the child to place his other foot onto the same step, following the above procedures. The procedures are repeated until the child descends the set of stairs.

4. The instructor prompts the child to place his hands on the railings by tapping the handrails. The child grasps the rails firmly. The instructor prompts the child to step down onto the next step by lightly rapping the child's calf. The child places his foot on the next step after the prompt. The instructor then prompts the child to move his hands forward along the handrails by tapping the back of the child's elbows and tapping the handrails in an appropriate place. The child moves his hands after the prompt, thereby causing his weight to shift forward and onto his front foot. The instructor then prompts the child to place his other foot onto the same next step, following the

above procedures. The procedures are repeated until the child descends the set of stairs.

5. The child places one hand on the handrail and the instructor holds the child's other hand. The instructor pulls on the child's hand, thereby causing the child to lean slightly forward. The forward lean prompts the child to step down with one foot, (to regain a balanced position). The instructor then prompts the child to move his hand forward along the railing by tapping the handrail. The child moves his hand after the prompt, thereby causing his weight to be shifted forward and onto his front foot. The forward shift of weight causes the child to step down with his other foot onto the same step, to regain a stable position. The procedures are repeated until the child descends the set of stairs.

6. The child places his hands on the handrails and grasps the railings firmly. The instructor prompts the child to step down onto the next step by tapping that step. The child steps down and then moves his hands forward along the handrails. The child then steps down with his other foot, to place his body back into a stable position. The procedures are repeated until the child descends the set of stairs.

7. The child places his hands on the handrails and grasps the railings firmly. The child then descends the set of stairs, marking time, unassisted.

8. The child places his hands on the handrails and grasps them firmly. The child steps down with one foot and places that foot on the next step. The child then moves his hands forward along the railings. As the child lifts his other foot to place it on the same (3rd) step, the instructor grasps the child's calf and guides his leg down to and onto the next (2nd) step. The instructor then prompts the child to move his hands forward along the handrails by tapping the back of the child's elbows. The instructor then grasps the child's calf and ankle of the leg on the 3rd step and places it onto the 1st step. The instructor again prompts the child to move his hands forward along the railings by tapping the back of the child's elbows. The instructor then places the child's foot on the 2nd step onto the ground, following the above manipulative procedures. The child then steps down onto the ground with his foot that is on the first step.

9. The child places his hands on the handrails and grasps them firmly. The child steps down with one foot and places it on the third step. The child then moves his hands forward along the handrails. As the child lifts his other foot to place it on the 3rd step, the instructor holds his hand under the foot and guides it to the second step. At this point the instructor releases the child's foot to allow the child to place his foot

onto the 2nd step. The instructor then prompts the child to move his hands forward along the handrails by tapping the railings. The instructor then prompts the child to place the foot on the 3rd step onto the 1st step. This is accomplished by tapping the child's calf to move the limb forward on the step, and then holding the bottom of the child's foot and guiding it to the 1st step. The instructor then releases the child's foot to allow the child to place it onto the first step. The instructor prompts the child to move his hands along the handrails by tapping the handrails. The instructor then prompts the child to place his foot on the 2nd step onto the floor. The same procedures used to move the foot from the 3rd step to the 1st step are used. The child then steps onto the floor with the foot that is on the first step.

10. The child places his hands on the handrails and grasps them firmly. The child steps down with one foot and places it onto the 3rd step. The child then moves his hands forward along the handrails. As the child lifts his other foot to step down, the instructor holds his hand under the foot and guides it to the 2nd step. The instructor releases the child's foot, and the child places it on the 2nd step. The child moves his hands forward along the handrails. The child then lifts up his foot on the 3rd step and the instructor holds his hand under the foot and guides it to the 1st step. The child then moves his hands forward along the handrails. The child lifts up his foot on the 2nd step and the instructor holds his hand under the foot and guides it to the floor. The instructor releases the child's foot and the child places it on the floor. The child then places the foot on the 1st step onto the floor.

11. The child places his hands on the handrails and grasps them firmly. The child steps down with one foot and places it on the 3rd step. The child then moves his hands forward along the handrails. As the child lifts his other foot to step down, the instructor applies pressure to the back of the child's calf until the child's foot is above the second step. The instructor then releases the child's calf and the child places his foot onto the 2nd step. The child moves his hands along the handrails. Stepping down from the 3rd step to the 1st step and from the 2nd step to the ground is accomplished as described above. (The child moves his hands along the handrails after each step.) The child then steps down with the foot on the 1st step, onto the ground.

12. Same as #11 except the instructor only taps stairs so that the child steps down on alternating steps.

13. The child is able to descend 4 stairs, alternating steps. The child uses both handrails for support.

14. The child holds onto the handrail with one hand and holds the instructor's hand with his other hand. The child descends 4 stairs, alternating steps.

15. Same as #14 except the child holds an object (toy) in one hand instead of holding the instructor's hand.

16. The child holds the instructor's hand with one hand and holds an object in his other hand. The child descends 4 stairs alternating steps.

17. The child holds an object in each hand and descends 4 stairs, alternating feet.

18. The child is able to descend 4 stairs, alternating feet with no support and not holding objects in his hands.

Jumping

Jump: One foot take-off, one foot landing.

Starting Conditions: A bench, approximately the child's knee height should be used.

Task 1. Child stands on the bench and faces the instructor. The instructor holds both the child's hands. The instructor pulls on the child's hands so the child steps down from the bench.

2. Child stands on the bench and faces the instructor. The instructor holds one of the child's hands. The instructor pulls on the child's hand so the child steps down from the bench.

3. Child stands on the bench and faces the instructor. The instructor holds out his hands for the child. The child initiates stepping down from the bench and grasps the instructor's hands after one foot has left the bench.

4. Child stands on the bench and faces the instructor. The instructor holds out his hands for the child. The child initiates stepping down from the bench and grasps the instructor's hands when one foot has contacted the ground.

5. Child stands on the bench and faces the instructor. The instructor holds out his hands for the child. The child initiates stepping down from the bench and the instructor pulls his hands away so the child is performing the task unassisted.

Jump: One foot take-off, two foot landing.

Starting Conditions: A bench, approximately the child's knee height, should be used.

Pre-Entry Behaviors: The child must be able to step down from a knee high bench - one foot take-off, one foot landing.

Task 6. Child stands on the bench and faces the instructor. The instructor holds both the child's hands. The child initiates stepping down from the bench. The instructor then lifts up on the child's hands so that the child is momentarily suspended in the air. The child then lands on two feet, using the instructor's hands for support.

7. Child stands on the bench and faces the instructor. The instructor holds out his hands for the child. The child initiates stepping down from the bench. After one foot has left the bench, the instructor grasps the child's hands and lifts the child up so that the child is momentarily suspended in the air. The instructor then releases his hands and the child lands on two feet with no physical support.

8. Child stands on the bench and faces the instructor. The instructor holds out his hands for the child. The child initiates stepping down from the bench. After both feet have left the bench, the instructor grasps the child's hands and lifts the child up so that he is momentarily suspended in the air. The instructor then releases his hands and the child lands on two feet with no physical support.

9. Child stands on the bench facing the instructor. The instructor holds out his hands for the child. The child initiates stepping down from the bench. Just prior to contact with the ground, the instructor grasps the child's hands and gives him support for a two foot landing.

10. Child stands on the bench facing the instructor. The instructor holds out his hands for the child. The child initiates stepping down from the bench. The instructor pulls his hands away so that the child lands on two feet unassisted.

Jump: Two foot take-off, two foot landing.

Starting Conditions: A bench, approximately the child's mid-thigh height, should be used.

Pre-Entry Behaviors: A child must be able to jump down from a bench, using a one foot take-off and a two foot landing.

Task 11. Child stands on the bench facing the instructor. The instructor holds both of the child's hands. The instructor tells the child to bend his knees and simultaneously pulls down on the child's hands so that the child bends his knees. The instructor then lifts up on the child's hands and pulls the child up and off the bench. (Both of the child's feet leave the bench at the same time.) The child is momentarily suspended in the air and then lands on two feet, using the instructor's hands for support.

12. Child stands on the bench facing the instructor. The instructor holds both of the child's hands. The instructor tells the child to bend his knees and simultaneously pulls down on the child's hand so that the child bends his knees. The instructor then releases the child's hands and holds his hand above the child. The child reaches up for the instructor's hands therefore causing his knees to straighten. The instructor then grasps the child's hands and lifts him up and off the bench. (Both of the child's feet leave the bench at the same time.) The child is momentarily suspended and then lands on two feet using the instructor's hands for support.

13. Child stands on the bench facing the instructor. The instructor holds both of the child's hands. The instructor tells the child to bend his knees and simultaneously pulls down lightly on the child's hands so that the child bends his knees. The instructor then releases his hands and holds them above and in front of the child. In reaching up and out for the instructor's hand, the child initiates a two foot take-off jump. Once the child has left the bench the instructor grasps the child's hands and guides him to a two foot landing on the floor.

14. Same as #13 except the instructor grasps the child's hands just prior to landing.

15. Child stands on the bench facing the instructor. The instructor tells the child to bend his knees and the child responds by bending his knees. The instructor holds his hands above and in front of the child. The child initiates the jump (two foot take-off) and the instructor moves his hand away so that the child lands on two feet unassisted. As soon as the child contacts the ground the instructor grasps the child's hand to help balance the child.

16. Child stands on the bench facing the instructor. The instructor holds his hands above and in front of the child. The child bends his knees, jumps down from the box (two foot take-off), and lands on two feet. The instructor moves his hands away so that the child is jumping unassisted and landing in a balanced position.

APPENDIX 4

Categorization of the Skills Selected for Instruction

FINAL IMPLEMENTATION PHASE

SKILLS	PRELOCOMOTOR	LOCOMOTOR	PLAY
Crawling	X		
Walking Unsupported		X	
Running		X	
Descending Stairs		X	
Ascending a Ladder		X	X
Jumping Down			X
Riding a Tricycle			X

APPENDIX 5

Task Analyzed

Instructional Sequences

FINAL IMPLEMENTATION PHASE

CRAWLING

Pre-entry Behaviors: Child must be able to attain a crawling position.
Starting Position: Child begins in a crawling position (on hands and knees)

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
1. Child moves one hand forward 6-10 inch with teacher manipulation.	Grasp child's wrist and move hand forward.	A toy may be placed in front of the child. Use many verbal cues.
2. Child moves one hand forward 6-10 inches with manipulative prompting.	Apply pressure to back of child's elbow until child moves hand forward.	Use special activity, that interests the child, that the child can move toward.
3. Child moves one hand forward 6-10 inch with prompting.	Tap floor where child is to place hand and encourage child to move hand.	A toy may be used and teacher can tap the toy and/or use verbal cues such as "get the toy", etc.
4. Child moves one hand forward 6-10 inch unassisted.		Use a toy that requires to be pulled. Set close to child, full further away as child reaches. Reward child with the toy.
5. Child moves hand forward unassisted and moves opposite knee forward with manipulation.	After child has reached forward, grasp front of child's thigh and under shin and move leg forward.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
6. Child moves hand forward unassisted and moves opposite knee forward with manipulative prompting.	After child has reached forward, push lightly on back of child's thigh until child moves leg forward.	
7. Child moves hand and opposite knee forward unassisted.		
8. Same as #7, then child moves other hand and knee forward with manipulative prompting.	Tap floor where child is to place hand. Push lightly on back of child's thigh until child moves leg forward.	
9. Child moves both hands and opposite knees forward using alternating style, unassisted.		A toy may be placed so the child is only able to reach it when he moves his 2nd hand forward.
10. Same as #9, except the task is performed twice in succession.		Same as above but place toy so it is reached with the 2nd movement of 2nd hand.
11. Child moves hand and opposite knee forward simultaneously with manipulation on knees only. Task performed with both hands and knees.	As child moves hand forward grasp front of child's thigh and shin and move leg forward. Follow same procedures for other hand and knee.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
12. Child moves hand and opposite knee forward simultaneously with manipulative prompting on knees only. Task performed with both hands and knees.	As child moves hand forward, push lightly on back of child's thigh until child moves leg forward. Follow same procedures for other hand and knee.	
13. Child moves alternate hands and knees forward simultaneously and unassisted.		Use a toy to encourage the child to crawl.
14. Same as #13 except child performs the task twice in succession.		
15. Child crawls for 5 feet using alternating style unassisted.		
16. Same as task #15 except is performed for 10 feet.		

RUNNING

Starting Conditions: A ramp approximately 4-5 feet long, 4 feet wide and 1 foot high is recommended.
Pre-entry Behaviors: Child must be able to walk unsupported.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
1. Child performs a fast walk with manipulation.	Hold child's hand and pull child forward.	
2. Child performs a fast walk with a manipulative prompt.	Tap child from behind to quicken pace.	
3. Child performs a fast walk with a verbal cue.	VC. "Hurry", "quick", "walk fast", "Catch me".	
4. Child performs a fast walk unassisted.		
5. Child performs a fast walk down an incline with manipulation.	Hold child's hand and pull child down incline.	
6. Child performs a fast walk down an incline with a manipulative prompt.	Tap child from behind to quicken pace.	
7. Child performs a fast walk on the incline unassisted.		

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
8. Child runs down incline with manipulation.	Hold child's hand and run, pulling child along.	
9. Child runs down incline with a manipulation prompt.	Tap child from behind to quicken pace.	
10. Child runs down incline with a verbal cue.	"hurry", "quick", "run, run, run".	
11. Child runs down incline unassisted.		
12. Child runs on level ground for 20 feet with manipulation.	Hold child's hand and run, pulling child along.	Mac-tac feet can be stuck to the floor and placed far enough apart so child has to "run" to step on the feet.
13. Child runs on level ground for 20 feet with manipulative prompting.	Tap child from behind to encourage running.	Elastic ropes can be strung across the floor so child has to leap over them.
14. Child runs on level ground with a verbal cue.	"Run, run, run", "hurry", "catch me", "I'm going to catch you".	Run behind, beside or ahead of child and try to catch child, or have child try to catch you.
15. Child runs on level ground unassisted.		

TO WALK UNSUPPORTED

Starting Conditions: A flexible object (i.e., a cloth, rubber hose) should be used.
Pre-entry Behaviors: Child should be able to stand and walk supported.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
1. Child walks one step with support of a flexible object.	Child holds flexible object. Hold flexible object next to child's hand.	
2. Same as task #1.	Hold flexible object 2 inches from child's hand.	
3. Same as task #1.	Hold flexible object 3-4 inches from child's hand.	
4. Same as task #1.	Hold flexible object 6-8 inches from child's hand.	
5. Child walks 2-3 steps with support of a flexible object.	Same procedures as task #4.	
6. Child walks 4-6 inch with support of a flexible object.	Same procedures as task #4.	
7. Same as task #6.	Hold flexible object 10-12 inches from child's hand.	
8. Same as task #6.	Hold flexible object 14 inches from child's hand.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
9. Child walks 6 feet with support of a flexible object.	Same as task #8.	
10. Child walks 8 feet with support of a flexible object.	Same as task #8.	
11. Child walks 10-15 feet with support of a flexible object.	Same as task #8.	
12. Child walks 2-3 steps unsupported from a balanced position.	Kneel in front of child. Hold out arms and encourage child to walk to you.	
13. Child walks 4-6 steps unsupported from a balanced position.	Same as task #12.	
14. Child walks 6 feet from a balanced position.	Same as task #12.	
15. Child walks 8 feet from a balanced position.	Same as task #12.	
16. Child walks 8-10 feet unsupported, avoiding obstacles.		

RUNNING

Starting Conditions: A ramp approximately 4-5 feet long, 4 feet wide and 1 foot high is recommended.
Pre-entry Behaviors: Child must be able to walk unsupported.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
1. Child performs a fast walk with manipulation.	Hold child's hand and pull child forward.	
2. Child performs a fast walk with a manipulative prompt.	Tap child from behind to quicken pace.	
3. Child performs a fast walk with a verbal cue.	VC. "Hurry", "quick", "walk fast", "Catch me".	
4. Child performs a fast walk unassisted.		
5. Child performs a fast walk down an incline with manipulation.	Hold child's hand and pull child down incline.	
6. Child performs a fast walk down an incline with a manipulative prompt.	Tap child from behind to quicken pace.	
7. Child performs a fast walk on the incline unassisted.		

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
8. Child runs down incline with manipulation.	Hold child's hand and run, pulling child along.	
9. Child runs down incline with a manipulation prompt.	Tap child from behind to quicken pace.	
10. Child runs down incline with a verbal cue.	"hurry", "quick", "run, run, run".	
11. Child runs down incline unassisted.		
12. Child runs on level ground for 20 feet with manipulation.	Hold child's hand and run, pulling child along.	Mac-tac feet can be stuck to the floor and placed far enough apart so child has to "run" to step on the feet.
13. Child runs on level ground for 20 feet with manipulative prompting.	Tap child from behind to encourage running.	Elastic ropes can be strung across the floor so child has to leap over them.
14. Child runs on level ground with a verbal cue.	"Run, run, run", "hurry", "catch me", "I'm going to catch you".	Run behind, beside or ahead of child and try to catch child, or have child try to catch you.
15. Child runs on level ground, unassisted.		

JUMPING

Starting Conditions: A bench approximately mid-shin height is used.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
ONE-FOOT TAKE-OFF, ONE-FOOT LANDING.		
1. Child steps down from bench with teacher manipulation.	Hold child's hands and pull child off bench.	
2. Child steps down from bench with manipulative prompt.	Hold out hands for child. After one foot has left bench hold child's hands assisting in landing.	VC. Step down use pole or diaper for child to hold for support. Teacher holds pole.
3. Child steps down from bench and receives assistance only when landing.	Provide support for child upon landing.	
4. Child steps down from bench unassisted.		
ONE-FOOT TAKE-OFF, TWO FOOT LANDING.		
5. Child steps off bench and lands on two feet with teacher manipulation.	Hold child's hands. Lift child up so child lands on two feet.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
6. Child steps off bench and lands on two feet with less teacher assistance.	Hold your hands out just in front of child and encourage jumping down. Hold child's hands after one foot has left the bench. Hold child's hands until child is landed and balanced.	Jump into sand, mud, water or other types of materials.
7. Child steps off bench and lands on two feet with teacher assistance only on landing.	Provide support for child upon landing.	
8. Child steps off bench and lands on two feet unassisted.		
TWO FOOT TAKE-OFF, TWO FOOT LANDING.		
9. Child jumps off bench with teacher manipulation.	Pull down on child's hands so child bends knees. Initiate jump off bench by lifting child's hands.	VC. "Jump", "Jump down".
10. Child jumps off bench with less teacher manipulation.	Pull down on child's hands so child bends knees. Release hands. Hold child's hands after child has initiated jumping.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
11. Child jumps off bench with prompt and receives assistance in landing.	Hold hands near child's knees so child bends his knees. Lift up hands. Grasp child's hands just prior to landing.	
12. Child jumps off bench and receives assistance on landing.	Balance child upon landing.	
13. Child jumps off bench unassisted.		Create a game - follow the leader.

DESCENDING STAIRS

Starting Conditions: 4-6 stairs, 4 inch high, 2 handrails
Pre-entry Behaviors: walk unsupported.
Starting Position: Child will stand on 4th lowest step.
Note: Task 1-9 child holds both handrails.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
1. Child descends 4 steps using marking time style with teacher manipulation.	Place child's hands on handrails. Grasp child's calf and ankle and place foot on next step. Move child's hands forward along handrails. Follow above procedures for subsequent steps.	Use mac-tac footprints stuck to stairs for child to follow. Use sensory touch material - to be placed on each stair (e.g.) flat tray of wet or dry sand, water, mud, paint, etc.
2. Child descends 4 steps marking time with teacher manipulation of hands and prompting of feet.	Place child's hands on handrails. Push lightly on child's calf until that foot slips onto the next step. Move child's hands forward along handrails. Follow same procedures for subsequent steps.	
3. Child descends 4 steps, marking time with manipulative prompting.	Tap handrails (child places hands on rails). Push lightly on child's calf until that foot slips onto the next step. Tap handrails (child moves hands forward). Follow above procedure for subsequent steps.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTION
4. Child descends 4 steps, marking time with prompting.	Follow procedures in task 3 for hands. Tap step where child's foot is to be placed. Follow above procedures for subsequent steps.	Use a toy that can be pulled. Have child follow it down the stairs.
5. Child descends 4 steps, marking time, unassisted.		
6. Child descends 4 steps, using alternating style with manipulation of feet and prompting of hands.	After child has stepped onto next lower step with one foot, tap railings so child moves hands forward. Grasp child's calf and place top foot onto the 2nd next lower step. Follow above procedures for subsequent steps.	
7. Child descends 4 steps, using alternating style with manipulative prompts for feet and prompting for hands.	Follow same procedures as in task #6 except place hand under child's foot and guide it to a position above the next lower step. Allow child's foot to drop onto that step. Follow above procedures for subsequent steps.	
8. Child descends 4 steps, using alternating style with prompts for foot placement.	Tap step where child is to place his foot. Follow above procedures for subsequent steps.	Cut outs of feet may be placed on the steps.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
9. Child descends 4 steps, alternating feet, unassisted.		
10. Child descends 4 steps, alternating feet, with one hand on the handrail and holding the instructor's hand with his other hand.	Hold child's hand.	
11. Child descends 4 steps alternating feet, holding an object in one hand and the instructor's hand.	Hold child's hand.	

ASCENDING A LADDER

Starting Conditions: 6-8 rung ladder, rungs 6-8 inches apart.
Pre-entry Behaviors: ascending stairs.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
1. Child ascends 4 rungs of ladder with teacher manipulation, using hand-hand foot-foot style.	Place child's hands on eye-level rung. Ensure firm grasp. Place child's feet on bottom rung by lifting back of child thigh and grasping child's ankle to guide foot onto rung. Follow the same procedures for subsequent rungs.	Hang bright toy or sensory object to climb to. Use many verbal cues i.e., "Up, up, up", "Climb the ladder", "Up you go".
2. Child ascends 4 rungs of ladder with teacher manipulation and prompting using hand-hand, foot-foot style.	Place one of child's hands on eye-level rung. Tap same rung to prompt child to place free hand on the same rung. Follow task 1 instructions for legs.	
3. Child places both hands on eye-level rung with prompting. Child ascends 4 rungs with prompting using hand-hand, foot-foot style.	Tap eye-level rung to prompt hand placement. Tap back of child's thigh to prompt placing of foot on bottom rung. Follow above procedures for subsequent rungs.	
4. Child places both hands on eye-level rung. Child ascends 4 rungs with prompting using hand-hand, foot-foot style.	Tap back of child's thigh to prompt placing of foot on bottom rung. Follow above procedures for subsequent rungs.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
5. Child places both hands on eye-level rung. Child ascends 4 rungs using hand-hand, foot-foot style.		
6. Child places one hand on eye-level rung. Child ascends 6 rungs with prompting using hand-foot, hand-foot style on alternate rungs.	Tap back of child's thigh to prompt placing of opposite foot on bottom rung. Tap next higher rung for child to grasp with free hand. Tap back of child's other thigh to prompt placing of foot on 2nd rung. Follow above procedures for subsequent rungs.	
7. Child ascends 6 rungs, receiving prompting for hand movements only, using hand-foot, hand-foot style, on alternate rungs.	Tap appropriate rung to prompt child to place hand on rung.	
8. Child ascends 6 rungs, using hand-foot, hand-foot style on alternate rungs.		
9. Child ascends 6 rungs moving opposite hand and foot simultaneously with some manipulation.	At the same time the child places opposite hand on rung, place child's foot on appropriate rung. Follow above procedures for subsequent rungs.	

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
10. Child ascends 6 rungs moving opposite hand and foot simultaneously with some prompting.	At the same time the child places opposite hand on rung, tap back of child's thigh to prompt child to place foot on bottom rung. Follow above procedures for subsequent rungs.	
11. Child ascends 6 rungs using a hand-foot, hand-foot style and moving the limbs simultaneously.		

TO RIDE A TRICYCLE

Starting Conditions: Tasks 1 - Child's feet are strapped onto the pedals. Child may be assisted onto the trike.

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
1. Child sits on trike while being pulled by the instructor for approximately 10 feet.	Instructor holds the child's hands on the handlebars and pulls the trike forward.	"Hold on and keep your feet on the pedals."
2. Child pushes one pedal down once with manipulation.	Push down on child's thigh 4 to 5 times. Remove hands. Child pushes pedal.	VC. Say "Push" each time the pedals are pushed down.
3. Child pushes down on 2 pedals, once each, with manipulation.	Same procedures as in task #2.	Move back from child and encourage child to pedal towards you. VC. "Push".
4. Child pushes down on pedals for 2-3 complete cycles (i.e., each pedal is pushed 2-3 times).	Same procedures as in task #2.	Use rope or cloth tied to front of trike. Pull and release. Encourage pedalling movements from the child.
5. Child pushes down on one pedal from a stationary position with manipulative prompting.	Place one pedal at its highest point. Tap child's thigh.	VC. "Push", "Push the pedal".

CHILD BEHAVIORS	TEACHER BEHAVIORS	TEACHING SUGGESTIONS
6. Child pushes down on both pedals from a stationary position with manipulative prompting.	Same procedures as in task #5. Once the 2nd pedal has reached its highest point tap that thigh.	
7. Child pushes down on one pedal unassisted and pushes down on the other pedal with manipulative prompting.	Place one pedal at its highest point. Child pushes pedal. Tap child's other thigh (child pushes down on that pedal).	Put bells on each pedal. Each time the child pedals, the bells ring.
8. Child starts trike in motion and travels for 2-3 complete cycles. (6-10 feet) (i.e., each pedal is pushed 2-3 times.)	Place one pedal at its highest point.	Stand back from the child and encourage him to pedal towards you. VC. "Push, Push".
9. Child starts trike in motion and travels for 15-20 feet.	Place one pedal at its highest point.	Same as in task #8.
10. Child starts trike in motion and travels for 20-30 feet avoiding obstacles.		Ride a trike behind, beside or ahead of the child. Play games such as "can you catch me", "I'm going to beat you". Walk backwards in front of child and encourage child to catch you.

APPENDIX 6

Equipment

FINAL IMPLEMENTATION PHASE

Trampoline

Air Mattress

Mat Rolls (2)

Mats

Ramp and Stairs

Stairs

Ladder and Slide

Climber

Tunnel

Tire Swing

Tricycles

Scooters

Wagon

Push Buggy

Balls

Blocks

APPENDIX 7

Recording Forms

FINAL IMPLEMENTATION PHASE

DAY	TASK NUMBER	NUMBER OF SUCCESSFUL TRIALS
1		
2		
3		
4		
5		
6		
7		
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